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OUTLINES OF THE SANI-
TARY ORGANIZATION
OF SOME OF THE GREAT
ARMIES OF THE WORLD.



BY

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OUTLINES

Of the Sanitary Organization of



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Outlines of Sanitary Organization of Some of the Great Armies of the World.*

BY MAJOR JOHN VAN RENSSELAER HOFF, SURGEON U. S. ARMY.

Military Sanitation may be defined as the art of preserving the health of soldiers, and hence is extremely comprehensive in that it includes not only military medicine and surgery, but everything that pertains to the prevention and cure of disease and injury under the peculiar and varied conditions of military life, and demands of its followers, besides a knowledge of scientific questions of treatment, very exact military training and execution.

One of the most important subdivisions of this great subject is *Organization*, and yet I venture to say that almost during this entire generation no professional subject has attracted less attention in our country than *military* sanitary organization, and consequently none is less understood.

With a view to a more general dissemination of a knowledge of this subject, I invite attention to:

I. THE RUSSIAN ARMY.†

Here sanitary organization is based upon the regimental hospital, each fighting unit (battalion) having its own sanitary *personnel*, appliances, and transport. Upon this, in active service, is engrafted a divisional organization following the lines of modern military sanitation.

The sanitary *personnel*, the surgeons, have no military rank, but belong to a class designated "official"—which includes all persons not actually fighting men—and are considered as civilians attached. In common with all other government officials, they have standing according to their rank in the

"Chin." All Russian military officials are known technically as "Voyennii Klassnii Chinovniki," and belong to one or the other of the following named classes: Chaplains, intendance officials, surgeons, veterinarians, artillery officials ("Artilleriiskii Chinovniki"), engineer officials ("Injeniernii Chin."), apothecaries, officials of the various educational establishments, etc.

In the foregoing groups there are no special names for grades, which are only denoted by the particular class rank in the "Chin" which the individual official has, and which is, in effect, a social or court standing. For example: All surgeons are designated "vrachi," yet they have rank in the "Chin" from the Third to the Ninth Class—the highest medical officer having the former and the lowest (junior surgeon) the latter. The highest apothecary official ranks with the Fifth Class, etc. All surgeons wear a uniform of dark green cloth, the coat (tunic) having cuffs and collar of the same, but piped with scarlet, and the shoulder knots narrower than those of combatant officers and ornamented with silver lace; the trousers are uniform in color with the tunic, but without stripe; the undress cap is also of dark green, with band of the same piped with scarlet. The subordinate *personnel* wear the same uniform as the regiment to which their hospital belongs.

The organization of the *personnel* of the Medical Department of the Russian Army is as follows:

Chief Medical Department.—One chief surgeon, one assistant, one chief inspector, four principal officials (surgeon, veterinarian, pharmacist, and oculist), thirteen surgeons, one pharmacist, eighteen minor officials, forty-five clerks, four couriers. In addition, this department has at its disposal five surgeons,

* Read before the Association of Military Surgeons.

† Data furnished by the Division of Military Information, Adjutant-General's Office, U. S. A.

fifteen pharmacists, fifteen veterinarians, and twenty-eight junior "feldshers" whose duties correspond to those of the "hospital corps" in the U. S. Army:

Military Districts and Staff.—In each District Military Medical Department there are: One chief, one district medical inspector, two assistants (surgeon and pharmacist), one oculist, one veterinarian, one surgeon and one pharmacist as secretaries, and an indefinite number of "feldshers" and clerks: In the Staff of Army Corps, one surgeon and one "feldsher": Staff of Infantry or Cavalry Division, one division surgeon: Staff of Field and Reserve Artillery Brigade, two surgeons, one veterinarian, and seven "feldshers": Staff of Sapper and Railway Brigade, one surgeon.

In the Line.—In an Infantry Regiment of four battalions there are: One senior surgeon, four junior ditto ("vrachi"), one senior and twelve junior "feldshers" (dressers), one compounder ("abtechnii feldsher"), fourteen dresser pupils, one hospital sergeant (nadziratri volniki), and three hospital orderlies—all these are classed as non-combatants. The average strength of the infantry battalion is about 1000 of all ranks, and the companies in a four-battalion regiment are numbered from 1 to 16. All of the non-combatant officials in a regiment are grouped into what is called a non-combatant company, which is not included in the numbering.

The medical *personnel* allotted to other fighting units is in proportion to strength, based upon the requirements of an infantry regiment.

A Cavalry Regiment has usually from 777 to 1000 men, depending upon the number of squadrons—four or six. A four-squadron regiment has: One senior and one junior surgeon, one veterinarian, six "feldshers" (in a six-squadron regiment, seven), four veterinary "feldshers," two "feldsher" pupils, one supervisor of sick (non-commissioned officer), and two hospital attendants.

The Artillery is organized into brigades of six battalions each, the average strength being 1100 of all ranks in each brigade. A foot battery has two "feldshers," one "feldsher" pupil, and one hospital attendant; a horse battery the same; a mortar battery, four

"feldshers" and one hospital attendant; the artillery parks, flying and movable, each one surgeon and seven "feldshers."

A Sapper Battalion is allowed one surgeon, seven "feldshers," five "feldsher" pupils, and two hospital attendants.

A Reserve Infantry Battalion—four companies—has one senior and one junior surgeon, seven "feldshers," five "feldsher" pupils. A Fortress Infantry Battalion the same. A Depot Cavalry "Cadre"—one surgeon, one veterinarian, four "feldshers," four veterinary "feldshers," and two hospital attendants.

The material, tentage, etc., of the regimental hospital, which always accompanies the fighting organization to which it belongs, is transported in four one-horse medical-stores carts; besides these there are four ambulance wagons, each drawn by four horses, and a two-horse wagon to carry thirty-two stretchers—two per company.

In peace or war the regimental medical units are completely organized, and the *personnel* is identical, save that in war eight additional junior "feldshers" replace the fourteen pupil "feldshers," and the capacity of the hospital is raised from sixteen to eighty-four beds—*i.e.*, twenty-one to each battalion a thousand strong.

In addition to the "feldshers," each of whom carries a knapsack containing dressing materials, six men are detailed from each company specially to act as bearers. A four-battalion regiment—sixteen companies, each containing two hundred and fifty men—furnishes ninety-six bearers from the combatant strength, who wear the arm band of the Geneva Convention, but only when actually employed in bearer work. During an action, the regimental medical *personnel* form collecting-stations to which the wounded are carried; but the regimental hospital is not pitched, ordinarily, except at the time the regiment goes into camp.

During active service the various medical units required on mobilization are organized from the regimental peace establishment, supplemented by men from the reserve; the drivers coming from the cavalry reserve. These units are in addition to the regimental medical organization, and are as follows:

To each Infantry Division in the field is attached what is called a "Sanitary Division,"

that forms a part of the divisional supply and transport column, and consists of a bearer company, a divisional ambulance hospital, and two "mobile" or field hospitals. In the case of sanitary divisions attached to active—as distinguished from reserve—infantry divisions, two extra "mobile" hospitals are included, making four in all for that division. The divisional sanitary organization is intended for the establishment of a main dressing-station, and to otherwise collect and despatch the wounded from the fighting line to the field hospitals. The *personnel* is made up of: One combatant officer commanding; five surgeons; one official—quartermaster; twenty-nine "feldshers," etc.; 217 non-commissioned officers and men of the bearer company; thirty-nine non-commissioned officers and men of the transport corps—a total of 292. Fifty stretchers, 2000 bandages—divided into ten packages,—fifty first-aid knapsacks, two operating-tables, four dressing-tents, and the necessary medicines, stores, etc., constitute the equipment. For transport, eight four-horse ambulance wagons, three one-horse medical-stores carts, fifteen two-horse stores wagons, and one four-horse stores wagon—for heavier portions of material—are required.*

With the Divisional Sanitary Train are twenty-four ambulance wagons, an equal number of stores wagons, six stretcher carts, and two medical-stores carts—each train carries 144 stretchers.

The organization of the Bearer Companies is practically identical with that of other companies, and the uniform is the same as that of the first regiment of the division to which it belongs, and the number of the division is shown on the shoulder-loop. The brassard of the Geneva Convention is worn, and no arms are allowed except to drivers, each of whom carries a hatchet but is not allowed the brassard.

* Longmore gives a somewhat different organization. His enumeration of the *personnel* of the Sanitary Division for the field hospital—to accommodate six officers and 160 men—is: Eight surgeons, sixteen dressers, fifty orderlies, and the necessary (?) officials; bearer company of one commissioned officer, one sergeant-major, eight sergeants, and 200 bearers; transport section, one officer and 108 drivers—total, 393.

The Divisional "Mobile" Field Hospitals constitute the third line of medical assistance, and each affords accommodation for ten officers and two hundred men. Their rôle, location and movements are the same as in other armies. The *personnel* of each hospital comprises five surgeons, two other officials, 107 non-commissioned officers and men—including twenty-eight for transport duties,—four "Sisters of Mercy," fifty-seven horses, and twenty-five wagons. The equipment includes, besides bedding and clothing for ten officers and 200 men, three large tents—each to hold twenty men,—210 bedsteads, 105 tables, forty stretchers, and the necessary medical stores, etc. Transport requires nineteen two-horse stores wagons, one four-horse wagon for heavy parts of tents, four one-horse stores carts, and one four-horse carriage for the "Sisters." The uniform of the *personnel* of these hospitals is the same as that of the *fourth* regiment of the division, with the number of the hospital on the shoulder-loop; the arms and use of the brassard are as described for the bearer company. During an engagement these hospitals are established somewhere in the rear of the line of battle; and, when necessary, in addition to the permanent *personnel*, surgeons and dressers are detailed from the regiments in sufficient number to meet the requirements of any particular emergency. The divisional ambulance hospital constitutes the dressing-station, which is located in the immediate rear of the fighting line, and its *personnel* is furnished by detail from the regimental surgeons and the bearer company.*

The Reserve Field Hospitals, of which 240

* Longmore says that in European Russia these hospitals number eighty-four and are permanent formations. In time of war they follow a few marches in the rear of the army. Each field hospital will accommodate thirty officers and 600 men, and can be divided into three equal sections. The *personnel* consists of one commandant (non-medical officer), one principal surgeon, nine surgeons, one apothecary, two compounders, and 304 non-commissioned officers and men, of whom sixty-three belong to the transport service. Each hospital has a train of twenty-seven carriages, which may also be employed to transport the sick to the hospitals further in the rear. Both material and hospital stores, in time of peace, are kept in the Intendance depots. The *personnel* and horses are organized only during active service.

are maintained, in time of war are established at points on the line of communication. They have no transportation, their *personnel* and stores being forwarded by rail, boat, or requisitioned transport. Each has five surgeons, four officials, eighty feldshers, etc., and four Sisters of Mercy. Their organization is identical with that of the divisional field hospitals, except as to transport.

The Military Sanitary Convoys, twenty in number, are mobilized in time of war for the transport from the front to the rear of wounded and sick. The strength of each is: One combatant officer in command, two surgeons, ninety-eight non-commissioned officers and men—including seventy-one for transport work,—two Sisters of Mercy, 137 horses, and thirty-six carriages—including twenty-seven four-horse ambulances, one four-horse kitchen wagon, seven two-horse stores wagons, and one one-horse medical-stores cart.

The Field Dispensaries are intended to supply the divisional and field hospitals with the medical and surgical stores required. In time of war, seven of these dispensaries are mobilized, each being provided with a supply equal to the requirements of four months. Three officials and twenty-one non-commissioned officers and men constitute the *personnel*. Transport is provided when required.*

There are seventeen Permanent Military Hospitals located in European Russia, eleven in the Caucasus, and six in Asia—divided into four classes. Class First provides 200 beds, with one chief surgeon, four other surgeons, four officials, one apothecary, eight feldshers, and seventy-six men of lower grades. Class Second has double the number of beds, three additional surgeons, one additional official, five additional feldshers, and 114 men of lower grades—otherwise duplicates the First Class. Class Third has 650 beds, one chief surgeon, ten surgeons, eight officials, one apothecary, twenty feldshers, and 152 men of lower grades. Class Four: 1100 beds, one chief surgeon, eighteen

surgeons, one combatant officer, ten officials, one apothecary, thirty-three feldshers, and 233 of lower grades.

In Europe also there are about sixty Local Hospitals, an equal number in Asia, and two-thirds as many in the Caucasus, varying in number of beds from fifty to 350, the *personnel* of each consisting of from two to seven surgeons, one to two apothecaries, one official—hospital supervisor,—three to eleven feldshers, seven to twenty-seven of lower grades, and one nurse for each lot of eight patients.

In every independent unit or command there is a Troop Hospital, opened only when no local or military hospital is available; or, instead of the troop hospital, may be opened in each command Receiving Rooms of sixteen beds. The *personnel* in either instance is determined by the regulations governing the sanitary service as already described "In the Line," for each regiment, battery, etc.

The Central Medical Depot is at St. Petersburg, and nine other lesser depots are established at different points in the Empire; these are for the purchase, storage, and issuing of supplies.

Longmore declares all temporary hospitals are under the orders of the Director-General, who is attached to the General Staff of the Army. Whether or not this official is a physician, does not appear—probably not, inasmuch as the author further adds that the Director-General is assisted in his duties by the chief surgeon as regards medical details, and that the *personnel* of the hospitals are under his orders, except the surgeons, who are, however, subordinate to him in matters of discipline and administration.

It is a part of the duty of the Director-General, in active service, to see that all hospitals at the front are evacuated as rapidly as possible, and if the ordinary means of conveyance are insufficient for this purpose, recourse can be had to wagons of the Intendance or of the country in which operations are being carried on. It is also his duty to establish new field hospitals, and generally to control the supply and see to the efficiency of all military sanitary establishments. He receives his orders from the Chief of the General Staff, and is in immediate communication with the Minister of War regarding medical supplies, etc.

* According to Longmore, twenty-eight stores wagons are attached to each Field Dispensary, some of which follow the advance of the army, the others being distributed between the base and other points.

The present total strength of the Medical Department of the Russian Army does not materially differ from that of 1886, which was: Surgeons, 2808; pharmacists, 232; medical feldshers, 3804; company (squadron, battery) feldshers, 3445—which may be said to fairly represent the peace establishment.

II. THE ARMY OF ITALY.*

The Military Sanitary Corps consists of: One Military Sanitary Inspectorate; twelve Military Sanitary Territorial Directorates; an indefinite number of Principal Military Hospital Directorates; Medical Officers; and twelve Sanitary Sections or Companies.

The Military Sanitary Inspectorate is composed of one inspector-in-chief with the rank of surgeon major-general, two sanitary inspectors ranking as surgeon major-generals or surgeon-colonels, one apothecary director, and one secretary. Each Territorial Directorate has one surgeon-colonel as director, one surgeon-lieutenant, one clerk, one orderly, and three attendants. The Principal Military Hospital Directorates are established, whenever necessary, by royal decree.

The number of Medical Officers assigned to the different combatant organizations is as follows: Regiments of Alpini (three or four battalions), one surgeon-subaltern per battalion; regiments of infantry or rifles (three battalions), one surgeon-captain and two surgeon-subalterns with regimental staff; regiments of cavalry (two battalions each), regiments of field artillery—corps or divisional—(two brigades), horse artillery regiments (three brigades and one train brigade), regiments of fortress artillery (three brigades and four brigades), regiments of engineers (seven brigades), each one surgeon-captain and one surgeon-subaltern, with regimental staff;† regiments of mountain artillery (three brigades), each one surgeon-captain and two surgeon-lieutenants.

Every regiment, and in case of the Alpini every battalion, has a corporal or lance-sergeant as sanitary assistant, except regiments

of mountain artillery—which have three. The officers of the sanitary department are graduates of the military medical school at Florence.

Each Foot Sanitary Section consists of two surgeon-captains—mounted,—four surgeon-subalterns, one accountant-subaltern, one civilian (chaplain), one sergeant or first sergeant, two sergeants or lance-sergeants, six lance-sergeants or corporals as sanitary assistants—three of whom are apothecaries,—three lance-sergeants as bearers, eight corporal bearers, three corporal sick-attendants, 132 privates—bearers,—fourteen privates as sick-attendants, and eight officers' attendants. The Train of the Section has also one officer, twenty-five enlisted men, twenty-eight horses, and four two-wheeled and eight four-wheeled vehicles.

Each Mounted Sanitary Section has one surgeon-captain—mounted,—one surgeon-subaltern, one accountant-subaltern, one chaplain, one sergeant or first sergeant, one lance-sergeant, two sanitary assistants—lance-sergeants or corporals, and one an apothecary,—one corporal sick-attendant, one corporal bearer, four privates as sick-attendants, twenty privates as bearers, four officers' attendants, and a detachment of artillery train consisting of thirteen privates, fourteen horses, and two two-wheeled and four four-wheeled vehicles.

The Sanitary (Hospital) Corps in active service is assigned as follows: One section to each infantry and cavalry division, and a headquarters or extra section to each *corps de armée*. The organized militia has likewise twelve sanitary sections. The uniform is similar to that of the infantry, except that the badge on the shako is a star with a Geneva cross; a white pompon is also worn with the number of the company upon it in red, and the Geneva badge appears again on the arm; the men carry side arms only.

Preliminary estimates for the Italian Army, 1894–1895, provide for the following sanitary organization: Thirteen surgeon-colonels, twenty-six surgeon-lieutenant colonels, fifty-five surgeon-majors, 283 surgeon-captains, 288 surgeon-lieutenants and second lieutenants*—total, 665; likewise twelve account-

* For many of the facts herein stated I acknowledge my indebtedness to the Military Information Division of the War Department, U. S. Army.—AUTHOR.

† Regiments of engineers differently constituted have the same proportionate allowance of medical officers.

* These may be replaced by surgeon-second-lieutenants in reserve.

ant-majors, twenty-five accountant-captains, fifty-seven accountant-lieutenants and second lieutenants—ninety-four in all,—with a number of “scrivani locali” (clerks) for the hospitals, usually about ninety in number; there are 115 under-officers—sergeant-majors, first sergeants, and sergeants,—forty-two sanitary assistants and bearers—lance-sergeants,—twelve lance-sergeants or corporals for accountant duty, 290 sanitary assistants, attendants, and bearers—corporals in rank,—and 1840 privates—also sanitary assistants, attendants, and bearers,—making a total of 2299. Also there are in the neighborhood of one hundred apothecary officers, whose duties are chiefly in connection with the medical supply depots. Before the law of 1894 went into effect, which was enacted as a measure of economy rather than efficiency, the organization represented: Three surgeon major-generals, three field officers (medical), and three surgeon-captains—all mounted—as Inspectors of Military Sanitation; twelve field medical officers and twelve surgeon-captains, with thirty-six horses, representing the twelve “District Directorates” (army corps); seventy-seven field medical officers, eighteen surgeon-captains, along with seventy-two lieutenants of the line, 103 sergeants, 275 corporals, 1925 privates, and 172 horses, attached to the hospitals and constituting the twelve Medical Companies; four medical field officers, two surgeon-captains, with four lieutenants of the line, four sergeants, two corporals, twenty-eight privates, and ten horses, representing the School of Application of Military Medicine, to which one surgeon-captain—mounted—and one lieutenant of the line were attached. To the First Legion Carbineers (cadets)—115 regiments infantry (Bessaglieri, Alpini)—were attached 108 surgeon-captains, 238 lieutenants of the line, and 108 horses; eighty-seven mounted surgeon-captains were assigned to an equal number of Districts; two surgeon-captains—mounted—to the Disciplinary Company (Penitentiary); twenty-four surgeon-captains—mounted—and twenty-four lieutenants of the line to twenty-four regiments of Cavalry; thirty-one surgeon-captains—mounted—and thirty-two lieutenants of the line to thirty-one regiments of Artillery; four surgeon-captains—mounted—

and four lieutenants of the line to four regiments of Engineers; eight surgeon-captains—mounted—and one lieutenant of the line to Invalid and Veterinary Schools and Colleges. The summary is: Three major-generals, ninety-six field officers, 300 captains—medical officers,—376 lieutenants, 107 sergeants, 277 corporals, 2053 privates of the troops, and 492 horses.

When the army is on war footing,* with the Intendance at the headquarters of an army in the field, there is an Army Sanitary Directorate organized as follows: One director surgeon colonel and one surgeon lieutenant-colonel, four surgeon-captains, four surgeon subalterns, one chief and three lesser apothecaries (civilians), two clerks, two officers' orderlies, fifteen officers' servants—the three latter classes being enlisted men; likewise eight horses. The train detachment is represented by one sergeant, one lance-sergeant, five corporals (saddlers, etc.), twelve lance-corporals and privates, and twenty horses, with five vehicles of all kinds, including forage and ambulance wagons. Total, ten officers, thirty-eight enlisted men, four civilians, and twenty-eight horses.

There are also fifteen Field Hospitals, of 200 beds each, attached to headquarters, the organization of each being as follows: One director—a surgeon-major or surgeon-captain,—two surgeon-captains, four surgeon-subalterns, one accountant-subaltern, one apothecary, one chaplain, one first sergeant, two sergeants or lance-sergeants, five sanitary assistants (two of whom are apothecaries), two sick-attendants (corporals), two bearers (corporals), eighteen sick-attendants (lance-corporals and privates), twelve bearers (lance-corporals and privates), ten officers' attendants, and a Civilian Train of eleven men, twenty horses, one four-wheeled† and eight two-wheeled vehicles—a total of eight officers, fifty-two enlisted men, thirteen civilians, and twenty-four horses. There are also field hospitals of 100 beds and mountain hospitals

* From the “Istruzione per la Mobilitazione del R. Esercito, Ptomio I. Formazioni di Guerra, 20 Luglio. 1892.”

† The four-wheeled vehicle is an “omnibus” for carrying the subaltern officers, the apothecary, the chaplain, and if necessary the sick.

of 50 beds, with a less numerous *personnel* than just given.

As a maximum, each army in the field has at its disposal four transport railway trains* for sick and wounded, organized as follows: One surgeon-captain as train director, three surgeon-subalterns, two non-commissioned officers, five lance-sergeants or corporals as sanitary assistants, four officers' attendants, thirty-five privates; also one combination car, thirty-five cars for transport of wounded, one car for baggage, one car for transport of chests of clothing, equipage, hospital stores, etc. The composition of this train may be modified according to circumstances.

With the headquarters of the army corps there is a Corps Sanitary Directorate,† as follows: One surgeon-colonel or lieutenant-colonel as director, one surgeon-lieutenant, one clerk, one orderly, three officers' attendants, and two horses.

With each corps, headquarters, and division of infantry, there is a Foot Sanitary Section, and with each cavalry division a Mounted Sanitary Section, the organizations of which have already been given. The personal organization for each regiment is as follows: Infantry or rifles—One surgeon-captain—regimental staff,—six surgeon-subalterns—two to each battalion,—three sanitary assistants—one to each battalion,—and twelve bearers—four to each battalion: Cavalry—One staff surgeon ranking as captain, two surgeon-subalterns—one to each battalion,—and one corporal sanitary assistant: Horse or Field Artillery—One surgeon-subaltern to each brigade: Mounted Batteries—Each one surgeon-subaltern, one corporal sanitary assistant, and two bearers.

* Cars for the transport of wounded are supplied with the necessary equipment, and each of them should be supplied with eight litters; 280 wounded may thus be carried. The *personnel* of the transport trains is ordinarily drawn from the territorial militia, and is attached, in accordance with orders from the Minister of War, to the Army Sanitary Directorate.

† The baggage, etc., of the Army Corps Sanitary Directorate is carried in one of the wagons of the staff of the corps, or else in the wagons of the Sanitary Sections attached, according to orders received from the chief of staff of the corps.

III. THE ARMY OF SWITZERLAND.*

The Federal Council, the highest military authority, controls the War Department, which for convenience of administration is subdivided into bureaus. The head of one of these, the Medical Department, is the Chief Medical Officer, a colonel, who directs the entire sanitary service of the army in time of peace, including the recruitment, instruction and discipline of the sanitary (H. C.) corps, and the control of all the material of his department. In his office are: an assistant ("chef de bureau"), a secretary, a clerk, and a staff apothecary officer (major) who assists in matters connected with medical supplies; and in time of war a chief of the hospital service, a chief of the voluntary sanitary service, and an apothecary officer are added.

There is also, in active service, a Principal Medical Officer who is the immediate head of the sanitary service in the field, eight field hospitals ("Élite"), sixteen ambulance hospitals ("Landwehr"), five transport columns, three sanitary railway trains ("Landwehr"); and eight hospital sections ("Landwehr") may also be mobilized. The various arms of the service take precedence among themselves in the following order: Infantry, Cavalry, Artillery, Engineers, Sanitary Troops, and Administration Troops. All officers of the various departments, except chaplains, hold actual military rank and are addressed by their military titles. The rank of medical officers ranges from first lieutenant to colonel, that of apothecary officers from lieutenant to major.

In the establishment of a Field Hospital there is one medical officer (major) commanding; also, one administrative medical officer (captain or lieutenant), one apothecary officer (captain or lieutenant), one chaplain and sometimes two, one clerk (lance-corporal), and one attendant (non-commissioned officer). Attached from Second Division

* Information upon the subject of this paper has been sought from convenient sources, and the compiler has equally freely used the substance and the words of the various original reports, etc., from which he has gleaned. He is particularly indebted to the Military Information Division of the Adjutant-General's Office, U. S. A., for valuable assistance.

"Landwehr" Train Battalion are: One captain, one lieutenant, one veterinary officer, one sergeant-major, one quartermaster-sergeant, nine lance-corporals, two trumpeters, one wheelwright, two collar-makers, two farriers; twelve requisitioned carriages for wounded (twenty-four draught horses), two requisitioned carriages for provisions (four draught horses), two requisitioned carriages for baggage (four draught horses), two material wagons ("fourgons") with eight draught horses, thirty-five men, seven saddle horses, and fifty-six draught horses (of which sixteen are spare).

The Hospital Ambulance Establishment consists of one chief with rank of captain, at least three other medical officers (captains or first lieutenants), one quartermaster (first lieutenant or lieutenant), two hospital attendants (non-commissioned officers), one apothecary officer (first lieutenant or lieutenant), ten hospital attendants (lance-corporals), two or four bearers (non-commissioned officers), twenty or twenty-four bearers, one "fourgon" (material wagon—four draught horses), one ambulance wagon for wounded (two draught horses), one provision wagon (two draught horses), and one baggage wagon with two draught horses. Mountain ambulances may be formed, as required, from the *personnel* of the regular ambulances, and equipped from the field hospitals. The equipment of two mountain ambulances is permanently kept up for the Eighth Army Division.

To the sanitary troops of the "Landwehr" is assigned the duty of organizing any necessary number of ambulances; there are at present sixteen in this branch of the national forces. It is intended the transportation (wheeled) for these ambulances will be requisitioned. The sanitary *personnel* not thus employed will be distributed among the hospitals and transport columns, etc., mentioned below.

The field hospitals are numbered 1 to 8, according to the divisions to which they belong. The ambulances of the "Élite" are numbered 1 to 40; numbers 1 to 5 belonging to the first field hospital, and so on. Those of the "Landwehr" are numbered 1, 2; 6, 7; 11, 12; 16, 17; 21, 22; 26, 27; 31, 32; 36, 37; numbers 1 and 2 belonging to the first divi-

sional district, 6 and 7 to the second, 11 and 12 to the third, and so on.

For the transport and care of the sick and wounded sent from the front during military operations, the following sanitary reserves will be furnished by the "Landwehr" of the whole army: Five transport columns, three sanitary railway trains, and eight hospital sections. The transport columns are intended to coöperate with the railways and steamboats for conveying the sick and wounded from the field hospitals to permanent institutions.

The establishment of a Transport Column of the Sanitary Reserve consists of one principal medical officer (captain), one medical officer (captain or first lieutenant), ten hospital attendants, two non-commissioned officers, thirty-two requisitioned carriages (sixty-four draught horses)—thirty of which vehicles are for the sick, the other two being reserved for baggage and provender. These transport columns are numbered 1 to 5; and the sanitary trains, as far as possible, will be supplemented by ordinary railway trains in the conveyance of sick and wounded to the permanent hospitals.

Each Sanitary Train demands one principal medical officer (captain), one medical officer (captain or first lieutenant), one apothecary, two hospital attendants (non-commissioned officers), five hospital attendants, ten bearers, and fifteen railway carriages. The special material for furnishing three such trains is to be kept in store in the Federal magazines; that required for two trains already exists. After providing the ambulance and sanitary trains, the remainder of the *personnel* of the "Landwehr" sanitary troops—and, if necessary, other supernumeraries—will form eight hospital sections, each capable of manning a military hospital of 200 beds. The establishment of these sections has not yet been definitely determined, but will probably be as follows: One principal medical officer, two or three assistant medical officers, one apothecary officer, ten to twenty hospital attendants. In 1891 a corps organization for the Swiss Army was definitely adopted, and each army corps has attached to its staff a chief medical officer and a corps field hospital.—In the Second Corps, this hospital consists of four

ambulances. Each division has one divisional medical officer (lieutenant-colonel), one adjutant of divisional medical officer, one staff clerk, and one hospital attendant. In the total staff there are thirty-eight officers of field hospitals (including "Landwehr" train), twenty-eight non-commissioned officers, 232 lance-corporals and other enlisted men, twenty saddle horses, 106 draught ditto, and thirty-eight carriages.

Among the number of officers and staff clerks at the immediate disposal of the Federal Council at the present time are two medical officers, nine lieutenant-colonels, nine majors, and one apothecary officer (major), all of the Sanitary Troops. Of the supernumerary troops placed at the direct disposal of the General Commanding the Army (in time of war) are: Five transport columns of the sanitary reserve, three sanitary trains (railway), and six hospital sections.

In the establishment of the Staff of Army Headquarters, Duty Section, are one medical officer and two hospital attendants.

The Medical Division of the Staff of the Army consists of one principal medical officer, two medical officers (adjutants—one of whom acts as medical officer of Headquarters Staff), and one staff clerk.

The normal and actual strength of the Sanitary Service ("Élite") is 4500 sanitary troops normal establishment, and 4950 actual strength. The "Landwehr" at present contains 2954 sanitary troops normal establishment, and 1555 actual strength.—In the total of the sanitary troops of the "Élite" is included the second divisions of the "Landwehr" train battalions which are required to horse the field hospitals.

*Sanitary Troops Recruit School.**—The session of the Medical Section of the Recruit School lasts forty-six days, during the first eleven of which the necessary military instruction is given to a school of infantry recruits, who thereupon undergo a technical course of thirty-five days. Non-commissioned officers attend a "cadre" school during the last twenty-one days of this period. At the conclusion of the course, candidates for the grade of hospital attendant

are selected from the litter-bearers, and put through a further course of twenty-one days (termed a "Cours d'Hôpital") in Cantonal hospitals. In 1886, 400 recruits passed through the recruit schools, of whom 161 subsequently attended the hospital course, and all but four became hospital attendants. In 1887, 434 recruits passed through the school. There is likewise a repetition course which all military medical officers must, during their term of service, attend for a period of fourteen days—this is termed a "Cours d'Opération," and two courses are held each year, about twenty medical officers of the rank of captain attending each. The instruction is partly medical and surgical and partly military. In addition there is a special course for superior medical officers; this was found necessary in consequence of great changes in duties prescribed by the new medical regulations. The instruction includes a series of practical problems to be discussed and worked out, both in the lecture-room and in the field, the exercises being directed by an officer of the General Staff. It is proposed to extend the instructions to all medical officers of the rank of captain who are nominated for promotion.

With regard to the *personnel* of the Sanitary Service, twelve out of forty ambulances are usually exercised each year (and according to the scheme at present in force, five ambulances of each of the eight field hospitals are called out for three repetition courses in ten years): two ambulances during the year at battalion exercises, four during brigade, two during regimental, and four during divisional maneuvers.

Of the sanitary *personnel* of the troops (infantry, cavalry, etc., as distinguished from the field hospitals), the senior medical officers of the battalions and four hospital attendants only in the infantry, and all the sanitary *personnel* of the special arms, perform their repetition courses with their corps. The rest of the infantry medical staff (second medical officer, non-commissioned officers, and bearers) undergo their course with the ambulances. For the divisional and brigade maneuvers, a detachment of sanitary troops is always to be called out and instructed under an officer of the Sanitary Staff.

The Officers' Preparatory School—Medical Section—is located at Basle, and two courses,

*From "The Armed Strength of Switzerland, 1889."

each lasting thirty-two days, are given. After passing through the school, forty or fifty medical men and four to eight apothecaries are annually commissioned as sanitary officers. Only physicians and apothecaries of suitable scientific acquirements who have passed through a recruit school can be nominated to join officers' preparatory schools with a view of obtaining commissions in the Sanitary Troops. The conditions to be fulfilled for the first appointment and promotion of officers are: For apothecary officer with the rank of lieutenant, a certificate of capacity; For medical officer with the rank of first lieutenant, a certificate from an officers' preparatory school; with the rank of captain, service as first lieutenant for two years and certificate of capacity; with the rank of major, service as captain for two years and selection; with the rank of lieutenant-colonel, service as major for two years and selection; with the rank of colonel, selection among the lieutenant-colonels. Certificates of capacity for first appointments as officers are given at the termination of the session of the officers' preparatory school, and are signed by the commandant of the school, according to the vote of the majority of the instructors, and countersigned by the "Chef d'Armée." In these, besides qualification in the various branches of professional knowledge, acquaintance with national and foreign languages is noted. Certificates of capacity for promotion are given by the Chief Instructors, who form their opinion from the reports made on the candidates during the courses of instruction, consideration being given to the right of nomination which is vested by law in the immediate commanding officers of the persons concerned. Commanding officers submit their nominations through their immediate superiors, and these in forwarding to the Chief Instructor also express their opinions on the proposed officers. The certificates are submitted to the "Chef d'Armée" (and divisional commanders in the case of infantry) for their counter-signature, and finally transmitted to the Military Department. The Chief Instructors, if they deem it necessary, are empowered to examine officers proposed for promotion before issuing certificates of capacity. Officers who have been relieved from service on account of age may be re-

employed if they wish it and the authorities think fit. Mounted officers are entitled to a civilian servant or allowance in lieu thereof, during active service and also during instructional courses; the daily allowance for a civilian servant being sixty-five cents, or fifty cents if rations or quarters are found. Civilian servants who are sick or injured in service are entitled to free rations, quarters, and medical treatment, and to ten cents daily pay, and all civilian servants are subject to military law. Men sick in hospital are subsisted by the hospital authorities, and for the subsistence and treatment of officers sent to hospital during instructional service a daily allowance of fifty cents is authorized. During active service, however, the Confederation pays for the subsistence and medical treatment of all sick officers.

Mere length of service confers no claim to pension in the Swiss Army. Every three years the Federal Council (which is the supreme authority in all matters relating to pensions) nominates a commission which sits under the direction of the Military Department, and investigates all claims on behalf of the Council. This "Pensions-Kommission" consists (1889) of the chief medical officer, a brigadier-colonel, a lieutenant-colonel of infantry, and a medical officer.

The Communes provide not only all the requisitioned carriages laid down in the regulations, for which they receive an indemnity, but must also comply without delay with all requisitions for transport for military purposes. Under the latter head are included: Provisions and baggage wagons for corps; wagons for the sick required by the field hospitals and transport columns of the sanitary reserve; harness and wagon-covers for the foregoing if these cannot be furnished from corps material; wagons, horses and drivers for provision columns, lines of communication, and carriage parks; the same for transports of detachments and single soldiers, sick, baggage, etc., for which army transport is not provided; horses for assisting transport to ascend steep hills; pack animals; carriers; guides; workmen to clear and repair roads, etc.; and transport boats.

The Chief Medical Officer of the Sanitary Service, who is the permanent official at the head of this branch, has the following duties

in time of peace: Responsibility for the recruiting and instruction of the sanitary troops and for the preparation of regulations regarding the medical service: Nomination of medical officers for appointments, promotion, and retirement: Distribution of the sanitary *personnel* of all ranks to the various units, with the approval of the Military Department: The superior direction of the commissions appointed to conduct the medical examination of recruits for all arms: Responsibility for sanitary material of every description—he must see that the clothing and equipment of the sanitary troops are complete and fit for immediate use. He organizes the medical service for all assemblies of troops, whether for instructional purposes or for active service, indicating the hospitals and dispensaries which are placed at their disposal; makes such proposals and arrangements as he thinks necessary for insuring the health of the troops, including questions of provisioning, clothing and housing the men; exercises general supervision over voluntary aid associations. Likewise he reports on all claims for pension or indemnity, and is *ex-officio* a member of the Pension Commission; checks and countersigns all accounts connected with the medical service; and prepares the yearly estimate for the medical service. On mobilization for active service, the medical peace establishment of an assistant, a secretary and a clerk is augmented by a deputy (a senior medical officer), a chief of the hospital service, a chief of the voluntary aid service, and a staff apothecary. The Chief Medical Officer is then charged with making all arrangements for putting the medical service on a war footing, the augmentation of *personnel* and material, establishment of military hospitals, arrangements for the transport of sick from the initial stations of the lines of communication rearwards, the instruction of newly raised levies, organization of voluntary aid, and supervision of the entire territorial sanitary service and its coördination with that of the troops in the field.

The Chief of the Hospital Service superintends the organization and administration of the permanent hospitals, and keeps the chief medical officer of the lines of communication informed of the available accommodation in the hospitals.

The Chief of the Voluntary Aid Service superintends the general working of volunteer ambulance associations, and maintains constant communication with the principal medical officer of the army in the field, with the object of insuring the useful employment of the *personnel* and material placed at the disposal of the State by voluntary associations.

The Staff Apothecary, in peace and war, superintends the provision, and is responsible for the quality, of all drugs supplied to the army.

The directing medical officers of the field army are: the Principal Medical Officer; the Corps, the Divisional and Infantry Brigade Senior Medical Officers, who are under the orders of the military commanders to whose staffs they are attached, and responsible to them, as well as to their own medical superiors, for the conduct of the whole medical service of troops under their supervision. The commanding officers are required to give them such information as to proposed movements of troops—and especially as to dispositions for impending engagements—as will enable them to make suitable arrangements for the dressing-stations, etc., and a directing medical officer must in all cases submit his proposals for the general organization of the medical service in the field for the approval of the commanding officer, or his chief of staff, before issuing orders on the subject.

The Principal Medical Officer with the troops keeps the Chief Medical Officer constantly informed of all important occurrences in the field which require to be known at the home medical headquarters, is responsible for the coördination of the field service with that of the lines of communication, for the timely demand for medical supplies and reinforcement of *personnel*, and generally for the working of the entire medical service of the army in the field.

The Chief Medical Officer on the lines of communication is under the orders of the Principal Medical Officer of the Army, and is responsible for the arrangements for the transport of sick and wounded from the field to the permanent hospitals, and to this end has under his orders the transport columns, sanitary trains and transport corps attached

to them, and the lines-of-communication hospitals and medical service generally; he is further responsible for the mobilization of the requisite number of transport columns at the terminal stations, and for their being in immediate communication with the ambulances and provisional hospitals in the field, and generally for the establishment and distribution of the requisite sanitary trains and lines-of-communication hospitals at suitable stations. He reports all return transport of sick to the Chief of the Hospital Service.

The Divisional Medical Officers are responsible at all times for the entire medical service of their divisions. In time of peace (and when no principal medical officer of the army is appointed) they are under the orders of the Chief Medical Officer in all matters of sanitary service; when in active service, under those of the Principal Medical Officer of the Army; the field-hospital and all other sanitary troops of the division are under their orders. In time of peace the Divisional Medical Officer is president of the medical commission for recruiting, keeps the rolls of the entire medical *personnel* of the division, is responsible for keeping the Chief Medical Officer informed of all changes in the establishment of the medical officers and other sanitary *personnel* of the various corps, and for the appointment, promotion and retirement of the non-commissioned officers; he also inspects the field hospitals at repetition courses, and proposes the hygienic measures necessary for maintaining the health of the troops. On the field of battle he fixes the principal dressing and ambulance stations according to the general indications of the Chief of Staff, and takes the requisite steps for evacuation of the wounded.

For every permanent place of assembly of detachments of troops, and every permanent Federal barrack station, the Surgeon-in-Chief nominates a Station Surgeon ("Medicine de Place"), who is chosen from among the resident medical officers serving or retired from service; as a rule the engagement is for one year. When any body of troops assembles at his station without its medical officers, the Station Surgeon performs the duties of the latter, and also assists, with advice and otherwise, those medical officers who may be called upon for duty with the troops. If

there is a military hospital at the station, he is *ex-officio* surgeon thereto, and he is responsible for the sanitation of the barracks and the health of the troops quartered in them. For every day of service he receives \$1.35 pay, with sixty cents extra for each day on which he acts as surgeon to a military hospital. If he accompanies the troops during exercise in field service, he receives the pay of his rank, and horse allowance.

The routine duties of the medical service are: With the troops; in field hospitals; in permanent hospitals; and when the sick are treated by private physicians.

The Medical Staffs of the various units have heretofore been enumerated. The *personnel* attached to the line consists of medical officers, bearers, and hospital attendants whose duty is to give first aid to the sick and wounded. During peace, and when in cantonment, mild cases of illness which are not likely to last more than a few days are treated in corps infirmaries, but more severe cases are removed to civil hospitals.

There are military hospitals in several of the large barrack towns, as Bern, Thun, Lucerne, etc., but these are ordinarily open only during the training sessions. At stations where such do not exist, a soldier during training is treated in civil hospitals, and—if his illness is not traceable to his own neglect or misconduct—at the expense of the Confederation.

The Swiss Field Hospital may be looked upon as a medical battalion consisting of a staff and five companies, the latter being termed "ambulances." The staff has sixteen requisitioned wagons, of which twelve are fitted up for the wounded (and attached as required to one or other of the ambulances), two for provisions, and two for baggage and cooking, and a column of reserve material, consisting of two wagons of medical stores, and sixteen spare horses. Each ambulance, which is really a movable field hospital, has four wagons, including one for the wounded. In time of war all these are horsed and driven by the second division of the "Landwehr" train battalion of the Division; in time of peace, by supernumerary men of the two divisions of the "Elite" train battalion, or any train soldiers available. Further, material for two mountain ambulances (arranged

for pack animals) is at the disposal of the Eighth Army Division, and each field hospital is capable of forming two small mountain ambulances. The ambulances can be used to form sick depots—*i. e.*, corps infirmaries for several units,—as collecting-stations during marches, as principal dressing-stations during engagements, and as evacuating-stations at the terminal stations of the lines of communication. The removal of the sick and wounded from regiments and dressing-stations of the first line to the principal dressing-stations may be effected by the ambulance wagons (one per ambulance) and the carriage column of the field hospital (twelve wagons attached to the ambulances); but whenever possible, as during peace service, the troops themselves remove their sick to the ambulances in their own transport. If “Landwehr” troops should be attached to a division, an ambulance will be added to the “Elite” field hospital thereof.—These arrangements complete what are known as the first and second lines of medical assistance, which are concerned with the treatment and evacuation of the wounded on the field of battle, and are under the orders of the Divisional or Principal Medical Officer of the Army. In rear of these again is organized a third line consisting of permanent hospitals, which are placed at the limit of the field of operations or on the lines of communication.

As a rule, sick and wounded who cannot be treated with their regiment or in the field hospitals (*i. e.*, ambulances) will, in time of peace, be removed to the civil hospitals engaged by special contract. If these do not suffice in time of war, permanent hospitals are established (classified as principal and reserve hospitals, special hospitals for infectious diseases, and convalescent stations), which are under the immediate orders of the Chief of the Hospital Service before mentioned, and manned by the hospital sections, assisted by voluntary aid associations. Material for 5000 beds complete is always kept up for these establishments in the depots at Bern and Lucerne. The transport of sick from the field establishments to the permanent hospitals is effected by the five transport columns furnished by the “Landwehr,” ordinary railway trains, sanitary trains, steam

vessels, and the medical service of the lines of communication.

With regard to the private medical attendance of sick and wounded, special permission of the Chief Medical Officer is required, and men so treated, as a rule, waive all claims to indemnity, etc.

The actual working of the Sanitary Service on the field of battle is as follows: In the case of a single regiment of infantry, say 2332 all ranks, each company during the advance is accompanied by its bearers, in the firing line. The medical portion of the staff of each battalion (consisting of two medical officers, two non-commissioned officers, two hospital attendants, and twelve bearers) remains in the rear and joins that of the other two battalions to form a regimental sanitary column, which thus becomes an independent unit, under the orders of the senior medical officer, who posts his detachment, now fifty-four strong (including the five other medical officers) in rear of the regiment, and follows it according to the direction of the Regimental Commander. The corps sanitary material in the battalion “fourgon,” consisting of eight stretchers per battalion, and the medical knapsacks and dressing-bags, are taken out and carried by the bearers in turn. As soon as the regiment becomes seriously engaged, the Regimental Medical Officer organizes his column as follows: Bearers are sent to the front in squads under the non-commissioned officers, forming patrols to search for, and relays to bring in, the wounded; and the first line dressing-station is established at a place selected or approved by the Regimental Commander, say 900 to 1100 yards in rear of the principal line of combat, or nearer if there is cover. If possible the troops will be informed of the position of this station, and it will be marked by waving flags or fixing red lanterns.

The non-commissioned officers in charge of the searching squads carry small horns for the purpose of signaling to their men. The detachment is then divided into groups: First, for the reception and sorting of the wounded (when a tag showing the nature of the casualty is affixed to the wounded man, after which he is carried to one of the following groups): Second, operating group, by which urgently required operations are exe-

cuted: Third, group for treatment of wounded and those who have been operated upon, preparing them for removal to the ambulances, bandaging, applying splints, etc.: Fourth, group for the slightly wounded, who will be treated at leisure: Fifth, group for receiving the dead and dying, with which is the Regimental Chaplain.—It may be mentioned here that the antiseptic bandages provided for use in the field are carried by the medical officers and bearers in parchment paper envelopes. It was at one time intended to provide each man with a bandage, as in the German Army, but experiments in the field showed that these, if constantly carried on the person, soon deteriorated from dust and moisture, and were frequently put to other uses; detached parties, however, are to be supplied with packets when away from medical assistance.

Each of the five ambulances of a field hospital forms a complete mobile hospital, capable of independent action in any position. The "fourgon" of each ambulance contains the necessary outfit for this purpose, with drugs and appliances sufficient for forty patients for two months, or for the treatment of 200 wounded after a battle; it also carries bedding for forty or fifty patients. The wagon for wounded carries twelve men sitting or six lying down. Further, the staff of the field hospital has in its two reserve "fourgons" sufficient bedding for eighty to one hundred men, with a store of drugs and hospital utensils, besides the sixteen requisitioned wagons before mentioned. Generally, one ambulance is employed to form the principal dressing-station for each brigade, the others being utilized in one of the various ways before indicated, or kept in reserve to reinforce one or other of the two already in action. The ambulance for each brigade is established during an engagement two kilometers from the firing line, or one kilometer in rear of the centre of the first line of medical assistance. The approximate position will be indicated by the commanding officer (brigade or divisional) after the directing medical officer has offered his opinion.

For the transmission of orders to the Chief of the Field Hospital or the chiefs of ambulances, the commanding medical officer is provided with mounted orderlies (guides or

train non-commissioned officers). As soon as the ambulance is established, the senior medical officer sends his wagons for the wounded to the dressing-stations of the first line, so as to be ready to bring in those who may have already been received there, and divides his detachment into groups according to the facilities offered by the buildings or locality he has occupied. Usually these groups comprise: a receiving party, which will examine and classify the cases, passing them on to the other groups, and making out the admittance returns; a subsistence section, under the quartermaster, which undertakes all the duties connected with the messing of the establishment; a surgical section, which may further be divided into sub-sections for operations, setting of fractures, and simple dressing; a hospital section, dealing with the quarters and bedding of the wounded. The wounded and those operated upon who cannot be moved with safety will be provided for in this section, transportable cases requiring continued treatment being moved as soon as possible to the third line. If the establishment of the ambulance is not sufficient, it may be reinforced by one of the ambulances kept in reserve, by order of the Divisional Medical Officer.

If the forces engaged continue to advance, the ambulance must necessarily remain stationary for some time, and one of the unemployed ambulances must follow up the troops; and similarly in case of retreat.

The Chief Medical Officer of the Lines of Communication, as soon as possible, despatches sections of the "Landwehr" transport columns, to insure the evacuation of the ambulances, and to organize the transport of convoys of wounded to the nearest "terminal stations;" or sanitary trains, etc., may be employed to remove the wounded towards the permanent hospitals. If, however, owing to the large number of untransportable sick, an ambulance cannot be evacuated for some time, it may form itself into a provisional field hospital; and the equipment has been carefully arranged with a view to this contingency.

The regulations regarding voluntary aid in time of war provide that such assistance may take the form of personal help in nursing, outside the immediate sphere of military

operations, and in the transport of the sick and wounded, and also that of gifts of medical comforts, etc.; but all such assistance must be organized under a responsible direction and placed in all respects under the supreme military control.

In addition to the medical officers serving with the troops, the Confederation has at its disposal in time of war the services of all medical men who are within the limit of age prescribed for the "Landsturm." It is specially provided that on a general mobilization, consulting surgeons may be nominated by the Chief Medical Officer and called in to serve by the Military Department, which will fix the rate of pay to be granted them. They must be men of superior professional standing and may be placed at the disposal of the Principal Medical Officer of the Army, or employed in permanent hospitals.

In 1880 a "Société Militaire Sanitaire" was formed in Bern by the members of the Sanitary troops, its object being to promote improvement in the theory and practice of military sanitary art by means of lectures, etc. In the following year societies were established in several other towns and a central committee was formed. Besides the mutual improvement of members, these societies charged themselves with the formation of "Sociétés Suisse de la Croix Rouge," having as their object the providing of voluntary aid for time of war, by educating the civil population in the art of giving first aid to the wounded. In 1882 a "Société Centrale de la Croix Rouge" was formed, its aim being to organize the *personnel* and material of the voluntary aid movement. In 1883 the central committee of the society, with which most of the local military societies had affiliated as sections, was removed from Bern to Basle; and in 1885, the Military Department, recognizing the value of these organizations as a means of extending the knowledge of the members of the Sanitary troops of whom they were composed, commenced granting a small annual subsidy to the sections which had joined the central society. In 1886, on the initiative of the military sanitary societies, several "Sociétés de Samaritains" were formed and instructed, after the model of the ambulance societies in England and Ger-

many, their object being to enable their members (policemen, railway employés, and private individuals) to give "first help" in case of accidents of all kinds. In 1887 there were thirteen of these military sections, with 274 members, affiliated with the central society, and most of the "Samaritain" societies had amalgamated as societies of a central association, the Military Department granting them also a small subsidy. In case of war it is foreseen that the latter societies could be utilized with great advantage, in rear of the army, to accompany convoys of sick on the road between detraining stations and the hospitals.

Recapitulation.—The Sanitary Organizations are composed of the sanitary *personnel* and the attached *personnel*.* The former consists of the sanitary officers, military medical officers, military apothecary officers, sanitary non-commissioned officers and soldiers, non-commissioned officers, "infirmiers," "brancardiers" (litter-bearers); the latter of the necessary quartermasters furnished by the Administration troops, the chaplains, the second division of the train battalion of the "Landwehr" of the corresponding division as hospital train, the necessary "cadres" for the transport columns, and the *personnel* of the volunteer aid societies.

In the distribution of the medical *personnel* there are attached to the Chief Medical Officer in case of general mobilization, one sanitary officer and his lieutenant (a lieutenant-colonel), one chief of the hospital service (lieutenant-colonel), a chief of the voluntary aid service (lieutenant-colonel), and one staff apothecary (a major): To the Staff of the Army—One medical director of the army (a colonel), two adjutants (majors or captains), one staff secretary, two "infirmiers." To the Commander-in-Chief of the lines of communication—One surgeon-in-chief of the lines of communication (lieutenant-colonel or major), one adjutant (captain or first lieutenant), one secretary.

The Staff of the Army Corps is composed of one chief corps medical officer, whose staff will doubtless be about the same as that of the division medical officer.

*Data furnished by the Information Division A.-G. O., U. S. Army.

The Staff of a Division has one division medical officer (lieutenant-colonel), one adjutant (captain or first lieutenant), one staff secretary, one "infirmier."

The Staff of an Infantry Brigade: One brigade medical officer (major).

The Staff of an Infantry Regiment: One captain (selected for the duty from the battalion medical officers of the regiment).

To each Battalion of "Fusiliers" or "Carabiniers" are attached one to two medical officers (captains or first lieutenants), two non-commissioned officers, six "infirmiers" (of whom the battalion medical officer will attach one to each company), and twelve bearers.

The Staff of a Regiment of Cavalry: One medical officer (captain or first lieutenant), and to each squadron one "infirmier."

A Brigade of Artillery: One captain (designated for the duty from the battery medical officers).

A Regiment of Artillery or a Divisional Park has one to two medical officers (captains or first lieutenants), who are selected from battery or park column medical officers.

Each Field Battery or Park Column has one medical officer (captain or first lieutenant), one "infirmier," and two bearers.

A Mountain Battery and a Company of Position, each one medical officer (captain or first lieutenant), one "infirmier," and two bearers.

A Train Battalion has one medical officer (captain or first lieutenant) to each division in the "Landwehr"—after the departure of the divisions of the train battalion for the engineer battalion, and for the Administration company, the medical officer of the train battalion enters the staff of the field hospital as adjutant.

To a Company of Artificers, one "infirmier."

The Staff of an Engineer Battalion requires one to two medical officers (captains or first lieutenants); each company, one "infirmier" and two bearers; an Administration company, one medical officer (captain or first lieutenant), and to a subsistence section one "infirmier."

The Staff of a Field Hospital is composed of one chief of field hospital (a medical officer ranking as major), as adjutant the medical officer of the train battalion, one officer of

administration (captain or first lieutenant), one apothecary officer (captain or first lieutenant), one to two chaplains, one sergeant-major of the Sanitary troops, one non-commissioned officer as clerk.

An Ambulance is composed of one chief of ambulance (a medical officer ranking as captain), at least three medical officers (captains or first lieutenants) and in case of war three medical students, one quartermaster (first lieutenant or lieutenant), one apothecary officer (first lieutenant or lieutenant), four to six non-commissioned officers, ten "infirmiers," twenty to twenty-four bearers. The Mountain Ambulances are formed in case of necessity with the *personnel* of the ordinary ambulance, and equipped with the mountain material.

IV. THE FRENCH ARMY.

A study of the military history of the French—a people who loved war, and who, in the words of the great Sully, "had pursued no other trade than that of arms"—affords the most satisfactory results in determining the evolution of Military Sanitation.

Since the days of Paré, "The Father of Modern Surgery," whose services were so universally recognized, and whose opinion was so highly valued by the Army that it was sought even upon purely military questions, military sanitation has advanced, by halting steps indeed, until to-day it has become the most specialized of the many specialties in our profession.

In 1591, at the siege of Rouen, field hospitals to follow the movements of armies first appeared in France. The Hotel des Invalides, for worn-out and disabled soldiers, was founded in 1659. In 1630 medical officers were first given a distinctive military title. In 1708 a royal edict created a permanent service of medical and surgical inspectors-general and majors to accompany the Army—this corps numbered two hundred officers, and its organization has continued from that day. In 1718 schools for army and navy medical officers were founded. In 1747 Fontanieux promulgated a code of regulations for the government of military hospitals—the foundation of sanitary regulations obtaining to-day; he reorganized hospitals for the training of medical officers, and instituted

sanitary councils. In 1761 De Chamousset inaugurated competitive examinations for appointment as medical officer, and established a central pharmacy. In 1780 *The Journal of Military Medicine and Surgery* was founded.

With continued peace the French military sanitary service retrograded, and in 1788 the medical corps numbered scarcely 170 officers; this is the common history of every military organization. No truer words were ever written than those of the rhyming soldier of Delhi:

"When war is rife and danger nigh,
'God and the Soldier!' is the People's cry;
When peace is made and all things righted,
God's forgot, and the Soldier slighted."

And particularly are they true of the Medical Service: In all grades of society we find a disposition to ignore the value of medical men, until sickness or accident compels an appreciation of their value. If this be true in civil life, how much more so is it in the army, in times of peace, when little heed is ever given to the warning from military sanitarians to "prepare for war."

But to return to France. The Revolution broke out and was followed by the Consulate and the Empire, a period of unceasing demands upon the sanitary service—the period of Percy, Larrey, and Desgenettes. Thanks to the activity, knowledge and genius of these men, the work was crowned with a success previously unknown. Percy and Larrey disputed the honor of having perfected the field hospital and ambulance wagon. Larrey, pressed by the necessities of the situation, devised the "Cacolet," by means of which the sick were carried on the backs of mules and camels. At Jaffa, pestilence decimated the army; Desgenettes conquered it. In the marvellous campaigns of Napoleon, in which he moved huge masses of men from one end of Europe to the other, his efforts were greatly assisted by Percy and Larrey. What they accomplished at that time in creating and training a sanitary corps from disunited and heterogeneous elements—a corps the like of which had never existed in any army before, and of which, indeed, Napoleon himself had never thought—seems to-day to be the crowning glory of that heroic age. But the full fruition was not yet—indeed, is not

yet. The strange notion that the brain capable of originating such an organization could not command it, obtained then, and obtains to-day; it is the irrepressible conflict in every service. The Medical Officer *recommends*, the General *commands*, and an officer of direction, intendance, or what not, *executes*.

October 19th, 1841, an ordinance was enacted giving medical officers rank in the Army, but without authority; even in their own corps they remained under the control of the Bureau of Direction, through which alone they could communicate with the military authorities. By a decree of May 3d, 1848, the Medical Corps obtained autonomy, and assimilation in organization to other staff corps of the French Army; but in 1852 this decree was declared revolutionary. Vainly had the medical officer demanded reform; and then came the sad lesson of the Crimea. Always the same story—it is written in the history of every nation, in ours in deeper red perhaps than in others'; and the pity is, this same lesson requires to be learned over and over again. The decree of June 18th, 1860, gave the medical officer rank, assimilating to that of other officers. The lessons of the Crimea, of the Italian War, the devotion of medical officers in Africa and in Mexico—all were necessary to destroy prejudice against and prove the value of autonomy for the Medical Department. It was not, however, until the overwhelming disaster of 1870 the French were made to realize that their army in every department was in need of radical reorganization. They at once began the study of the military methods of other nations, that they might select from them the best for their own; and to-day, after twenty years of careful consideration, and in spite of much opposition, the sanitary service of the Army of France, wholly controlled by the Medical Department, is undoubtedly the most perfect in existence.

Let us still further consider the lesson taught by this nation, by a glance at its perfected sanitary organization, the merest outline of which, it is believed, will convince the most incredulous that military sanitation is, as has been heretofore stated, the most specialized of all the specialties of our profession.

The Medical Corps of the French Army

(*Corps de Santé Militaire*)* consists of both medical and apothecary officers, graded as follows: Medical Director-General; Medical Inspectors; Principal Medical Officers of the first and second class; Surgeons-Major of the first and second class; Assistant Surgeons; Principal Apothecaries, first and second class; Apothecaries-Major of the first and second class; Inspecting Apothecaries-Major of the first and second class; and Assistant Apothecaries-Major, first and second class. These grades, among both medical and apothecary officers, correspond to the grades of the military hierarchy, and the persons holding them have the standing of officers. The correspondence of the grades of the military and medico-military hierarchies runs from Medical Director-General, who ranks with a General of Division, down to the Assistant Surgeon-Major or Assistant Apothecary-Major with the rank of Second Lieutenant.

The total strength of the corps, according to the budget of 1892, is 1400, distributed as follows: One medical director-general, nine medical inspectors, forty principal medical officers (first class), forty-five principal medical officers (second class), 296 surgeons-major (first class), 456 surgeons-major (second class), 393 assistant surgeons-major (first class), seventeen assistant surgeons-major (second class),—total, 1257; one inspecting apothecary, four principal apothecaries (first class), five principal apothecaries (second class), forty-three apothecaries-major (first class), fifty-eight apothecaries-major (second class), thirty-eight assistant apothecaries-major (first class), four assistant apothecaries-major (second class),—total, 143.

The *personnel* of the *Corps de Santé* is distributed as follows: 454 medical and apothecary officers in the "Directions" and Hospitals,† sixty medical and apothecary officers detached on various services, 876 medical officers of all grades assigned to regi-

ments, battalions, etc., six medical and apothecary officers in the *Gendarmerie* and the *Garde Republicaine*, four medical officers with Fire Brigade,—total, 1400.

A regiment of infantry, three battalions of four companies each, has generally one surgeon-major (first class), one surgeon-major (second class), and one assistant surgeon-major (first class). The eighteen *regional* regiments of infantry have, however, no surgeon-major of the first class. Each separate battalion of infantry has one surgeon-major (second class) and one assistant surgeon-major (first class). Cavalry regiments have no surgeon-major of the first class. Regiments of artillery, and pontonniers, have the same number of medical officers as infantry regiments, but separate battalions of artillery have no surgeon-major of the first class. Engineer regiments have each one surgeon-major and one assistant surgeon-major, both of the first class. Each squadron of the train has one assistant surgeon-major of the first class.

The *Annuaire* of the French Army for 1893 shows some changes in the totals and figures just given, as follows: One medical director-general, nine medical inspectors, forty principal medical officers (first class), forty-five principal medical officers (second class), 313 surgeons-major (first class), 479 surgeons-major (second class), 296 assistant surgeons-major (first class), 118 assistant surgeons-major (second class),—total, 1301. Total number of apothecary officers of all grades, 115. Aggregate for 1893 of the *Corps de Santé*, 1416.*

The sick of the different regiments and separate battalions are cared for in regimental infirmaries, or in quarters, according to circumstances, by the regimental medical officers, who attend not only the officers and soldiers of the regiment, but also their families. Cases requiring hospital treatment are sent to the hospitals.

There are thirty-five military hospitals in France, and a large number in Algeria and Tunis, divided into five classes: First class, 600 or more beds; second, 400 to 599 beds; third, 300 to 399 beds; fourth, 200 to 299

* For these details of organization the compiler is indebted to the Military Information Division of the Adjutant General's Office, U. S. Army.

† The Military Government of Paris and the Army Corps have each a medical inspector or principal medical officer (first class) as director of the sanitary service. The three divisions of the Nineteenth Corps in Algiers have each a medical director; also the Brigade of Occupation in Tunis.

* Apparently they are increasing the number of medical and diminishing the number of apothecary officers.

beds; fifth, less than 200 beds. There are also among the military four "thermal" hospitals, where men can be treated with mineral waters.

In localities where military hospitals do not exist, or where they are insufficient, civil hospitals are required to receive and treat soldiers when sent by military authorities; to this end civil hospitals are divided into two categories: Mixed or militarized hospitals (*hospices mixtes ou militarisés*), and civil hospitals properly so called (*hospices civils proprement dits*). In the first category are classed civil hospitals having wards specially told off to military patients, and whenever a garrison numbers 300 men the military patients are to be treated in such special wards and to be under military hospital regulations. In the second category are classed town hospitals, where the garrison is below 300 men, in which military patients will ordinarily be placed in the regular wards if special wards are not obtainable. In a garrison of 1000 men the treatment of the sick will be attended to by military medical officers; with a garrison of less number, duty in the military wards is performed by civil surgeons where the military *personnel* is insufficient. In civil hospitals properly so called, military patients are treated by civilian surgeons, and the State pays all expenditures incurred in its behalf; there is also a regular appropriation made each year for the remuneration of the attending civilian surgeons.

The *personnel* of the military establishments comprises, in numbers fixed by the regulations: Medical officers; officers of the hospital administration; hospital orderlies (*infirmiers*); chaplains; Sisters of Charity (*Soeurs Hospitalières*). There is a chief medical officer to each military hospital, and such number of other medical officers as may be required as assistants.

The officers of the Hospital Administration are a branch of the Intendance, and, under the chief medical officers, administer the military hospital service, have command of the sections of *infirmiers*, and of the detachments of *infirmiers* in the different hospitals. In 1892 they numbered: fourteen principal officers of administration; fifty-six officers of administration, first class; fifty-six officers of administration, second class; 112 officers

of administration, adjutants, first class; 112 officers of administration, adjutants, second class;—total, 350.

Hospital Orderlies (Infirmiers).—The Sections of *Infirmiers* are for employment in hospitals, with ambulances, and at medical depots. These are twenty-five in number, distributed as follows: The first nineteen are attached to the army corps of the same numbers; the twentieth and twenty-first sections are attached to the Nineteenth Corps (Algeria), making three sections to that corps; the twenty-second, twenty-third and twenty-fourth are attached to the military government of Paris; the twenty-fifth to the military government of Lyons.—A detachment, taken from one of the home sections, is on duty in Tunis. The total number of men in these Sections, in 1892, was 1439 non-commissioned officers, corporals and trumpeters, and 3960 soldiers,—aggregate, 5399. Each Section comprises: Hospital orderlies for duty in the wards; orderlies employed as clerks; orderlies for general duties, such as cooking, cleaning the wards, etc.

The budget for 1892 also provided for seventy-seven hospital chaplains and for rations and clothing for 292 hospital Sisters.

Regimental Hospital Orderlies.—There is one *infirmier* per battalion in time of peace, and in addition there is a corporal detailed to take charge of the infirmary. One of the regimental *infirmiers* is detailed each week for duty in the infirmary.

The patients in the infirmaries, and the convalescents, are rationed by the general mess. Such men as are on special diet live in the infirmary, and the cooking for them is done by one of the *cantinières* designated by the commanding officer; if there is no *cantinière*, all get their meals from the regular mess.

War Sanitary Organization.—The duties pertaining to the sanitary service in the field are: To anticipate, prepare, and execute sanitary measures which will insure the health of the command; in action, to render first aid to the injured; to transport the injured to a place of succor; to organize ambulance, field and general hospitals. This service is divided into Service of the Front and Service of the Rear. The former comprises all sanitary formations which accompany the troops on the

march, while the latter embodies all those formations which form a part of the armies in the field, but which do not march with the troops. Distributed in rear of the armies of operation, these formations are not subject to the army corps commanders, but to the Director of Lines of Communication, himself subordinate to the Director-General of Railways and Lines of Communication, and to the Chief of the General Staff.

The Service of the Front is divided into three echelons: (1) The regimental service, intended to give first aid to the troops when stationary, on the march, and during engagements: (2) The ambulance (field) hospitals, intended to supplement the regimental service during marches and halts, to receive the wounded on the battle-field, and to give them such care that they can be sent to the rear (*evacues*) promptly.—Each army corps possesses one ambulance hospital or dressing-station for each division of infantry, one for the cavalry corps, and one for headquarters, and each independent cavalry division has one ambulance hospital.—The ambulance hospitals are classed with the fighting train. The number of field hospitals assigned to each army corps is fixed by the Minister of War: (3) The field hospitals, intended to relieve the ambulance hospitals in the evening or the next morning; to continue the “evacuations” (despatch of the wounded to the rear); to treat the sick and wounded on the spot; and eventually to reinforce the ambulance hospitals on the battle-field.

The Sanitary Formations of the Rear constitute two groups intended for the formation of hospitals on the spot, and for “evacuation” and re-supply and refitting. The first group comprises: The field hospitals temporarily fixed from time to time in rear zone, to treat on the spot sick and wounded unable to be moved; and such of the permanent military and civil hospitals as are found near the lines of concentration, as well as the auxiliary hospitals created by the aid societies. The second group comprises: The evacuation hospitals placed at the heads of the different lines of communication—the patients are treated here until they can be sent to the interior; the station infirmaries and the infirmaries of the stopping-places on the lines of evacuation, which furnish food, care and medicines

to the sick and wounded *en route*, etc.; hospital transports, comprising railway evacuation trains, wagon evacuation trains, and hospital transport ships; station magazines established on the lines of communication; depots for convalescents and broken-down men, established along the lines of march and evacuation in the vicinity of field or evacuation hospitals, to receive such convalescents as do not have to be sent home.—These convalescent camps are established by the Chief of the Medical Service of the Line of Communication, to receive such men as are sent by the superior commanders, and are divided into as many sections as there are brigades in the division. A headquarters ambulance hospital consists of two sections. Hospitals of Evacuation (field) may be divided into several sections.

Personnel of the Sanitary Formations.—First, the Direction (headquarters), consisting of medical and administration officers and *infirmiers* of the active, reserve, and territorial armies: Second, with the troops are medical officers as above, also auxiliary medical officers, regimental *infirmiers* and *trancardiers*, together with teamsters for the medicine and ambulance wagons: Third, with the sanitary organizations are medical officers as above, together with physicians and apothecaries impressed into service: Fourth, establishments created by the various aid societies, Red Cross, etc.—delegates, physicians, agents, *infirmiers*, litter-bearers, according to the decree relating to these societies.

For each battalion of infantry, each brigade of cavalry or group of mounted batteries, one medical wagon is allowed for the transportation of medical supplies. To cavalry regiments and horse battery groups are attached small carts for the transportation of the wounded, each to carry a medical pannier. Ambulance hospitals have various kinds of wagons for different purposes, but field hospitals are permitted no ambulance wagons, only vans for the transportation of their supplies.

The Medical Director-General is chief of the entire sanitary services. Each army has also a medical inspector, director of the sanitary service; each *Corps d'Armée* a principal medical officer, corps director; each division a principal medical officer, or sur-

geon-major, chief of the medical service. The lines of communication of an army have a principal medical officer, chief of the medical service. Finally, a fortified place or group has a principal medical officer or surgeon-major, chief of the medical service.

Each Director or Chief of Service controls his department—has authority over all the *personnel* on duty in the ambulance or other hospitals under his command, and with regard to these officers and men has the same disciplinary powers as other officers of his rank. The Officer of Administration controls, under the authority of the Chief Medical Officer, the administrative service, as well as the order and discipline of the sick and the *infirmiers*; under the same authority he commands and administers the detachment of *infirmiers*, having the disciplinary powers of a company commander.

The Regimental Sanitary Service is intended to give first aid at stopping-places, on the march, and during engagements; the *personnel* is as follows: One surgeon-major and assistant surgeon-major of the active service, and two reserve or territorial officers (assistant surgeon-major and auxiliary surgeon) to each regiment of infantry, *Zouaves*, or *Tirailleurs*; to each battalion of *Chasseurs-a-Pied* one active surgeon-major and one assistant surgeon-major (reserve or territorial); regiment of cavalry or *Chasseurs de Afrique*, only one active surgeon-major; each divisional group of six batteries of artillery has one assistant surgeon-major (active) and one auxiliary surgeon (reserve); the first group of corps batteries has one active surgeon-major and one reserve auxiliary surgeon, and the second group one active assistant surgeon-major and one auxiliary surgeon (reserve); a group of three batteries, cavalry division, has the same medical officers as the second group of corps batteries; first echelon of the park has one assistant surgeon-major (active), only, as likewise has the second echelon of the main artillery and bridge train park.

On a war footing, the regiments of infantry, of cavalry, and the regiments and battalions of artillery, have one *infirmier* per company, squadron, or battery; and in each battalion or group of batteries, one of these *infirmiers* has the grade of corporal. Each

infantry company and artillery battery has also in the field four bearers; each battalion and each group of batteries has, besides, one bearer-corporal; for a regiment of infantry there is one additional bearer, with the rank of sergeant. The additional *infirmiers* required on mobilization are furnished by the reserve—those for the infantry by the musicians and workmen, and those for the artillery by the musicians of the artillery schools. The complement is made up by the artillery musicians of the reserve.

The non-commissioned officers of the bearers of infantry, and the corporals from the musicians or workmen, are of the reserve.

The Chief Medical Officer directs the sanitary service under the authority of the commander of the regiment or battalion, and is aided by other medical officers in the order of their rank; the auxiliary surgeons (who rank as adjutant, non-commissioned officers) aid the medical officers of the active army, the reserve, and the territorial army, and can in no case become chiefs of the medical service.

The regimental *infirmiers* are exclusively employed in caring for the sick when the troops are stationary or on the march, under the immediate direction of the auxiliary surgeons; in battle they assist the medical officers in organizing and working the dressing-stations. They can be temporarily called, in case of urgent necessity only, to assist in the service of the ambulance and field hospitals. Regimental *infirmiers* and bearers, to the exclusion of all other combatants, are entrusted with the duty of picking up the wounded on the battle-field and carrying them to the dressing-stations; in the discharge of this duty they are directed by the non-commissioned officers and corporals of the bearers. When a battle is impending, the bearers report to the senior medical officer; after the action is over they return to the ranks.

When the troops are stationary, the regimental *infirmiers* are organized as in time of peace. During actions, the dressing-station is established by the medical officers and *infirmiers* of the battalion or group, and is connected with the firing line by the regimental bearers, who are the only persons entrusted with the duty of moving the

wounded back from this line. The musicians of the battalion form a relay between the dressing-stations and the ambulance relays.

Division Ambulance Hospitals are subdivided into two sections. The *personnel* of the first is, one surgeon-major (active), one assistant surgeon-major (active), two assistant surgeon-majors (reserve or territorial), one officer of the Administration (supply officer), one chaplain, one student of the Lyons school, fifteen *infirmiers* (two non-commissioned officers, three corporals, ten privates), forty-nine bearers (one non-commissioned officer, two corporals, forty-six privates); of the second, one surgeon-major (active), two assistant surgeon-majors (reserve or territorial), one officer of Administration, fifteen *infirmiers* (two non-commissioned officers, three corporals, ten privates), forty-nine bearers (one non-commissioned officer, two corporals, forty-six privates).

The *personnel* of the Train, first section, is made up of one lieutenant of the train, one non-commissioned officer, one veterinarian, one corporal-quartermaster, two corporals, one blacksmith, one workman, one trumpeter, three mounted teamsters, thirty-four unmounted teamsters, four orderlies of the train for the mounted officers; second section, one lieutenant of the train, one non-commissioned officer, two corporals, one saddler, one workman, one trumpeter, two mounted teamsters, thirty unmounted teamsters, one orderly of the train for the surgeon-major.

Such is the *personnel* in each part of the sanitary service of this Army. The organization is simple, but, simple as it is, it demands of each of its members, outside of a knowledge of scientific questions of treatment, a very exact military execution.

In a recent issue of *The Broad Arrow* is the following:

Not the least remarkable evidence of the great progress made by the French in the organization of their army is to be found in the official treatise, "Reglement sur le Service de Sante de l'Armée en Campagne." These regulations are marked by a thoroughness and attention to detail which, if carried into effect in war time, will result in the complete efficiency of their hospital service, and a corresponding diminution of suffering to the sick and wounded. The tactical employment of the Ambulance Service is most carefully treated, and what is remarkable is the provision made for its presence with the most advanced troops.

V. THE GERMAN ARMY.

In accordance with the principle that the maintenance of the efficiency of an army is the essential element of success, and that therefore the care of the troops is one of the most important duties of the commanders and the administration, the greatest attention is paid to sanitary matters by the German military authorities. In this army—as in all others—the sanitary organization naturally divides itself into *personnel* and material. The former includes the medical officers, who have the rank of combatant officers and occupy positions of absolute equality with them; apothecaries who rank with administrative officials; non-commissioned surgeons and apothecaries; hospital stewards, nurses, etc.; and in active service the litter-bearers. The sanitary material and institutions are the garrison hospitals and regimental dispensaries, and in war the field hospitals, communicating and reserve-of-base hospitals, etc., etc.

*Peace Sanitary Organization of the German Army.**—The Medical Division of the German War Ministry is headed by the *General-stabsarzt*—equivalent to Surgeon-General or Medical Director-General of the United States Army. In addition he is charged with duties similar to those of an inspector-general of a special army of the service. He has the rank, pay and emoluments of a major-general.

Each of the army corps—twenty in number, counting the two Bavarian corps—has a Surgeon-General (*Generalarzt*) as Medical Director.† These officers are divided into first and second class, and rank respectively with colonels and lieutenant-colonels.

The Surgeon-General of an Army Corps is the head of the Medical Department in his district, and distributes the medical officers as he sees fit. The senior surgeon-major (*Oberstabsarzt*) of each division is appointed Divisional Surgeon. General (garrison) hospitals are under surgeons-major, who are appointed Hospital Directors, and are the commanding officers of the hospital *personnel*, with the powers of punishment of a company

* Data furnished by the Division of Military Information, Adjutant-General's Office, U. S. Army.

† There is also one Surgeon-General, Chief of the Frederick William Institute.

commander. The sick from all organizations serving in the same garrison enter the same hospital. Berlin and several of the large garrison towns are divided into two hospital districts, with a hospital in each.

The grades below Surgeon-General are: Surgeons-major (*Oberstabärzte*), surgeons (*Stabärzte*), and assistant-surgeons (*Assistenzärzte*). Surgeons-major and assistant-surgeons are divided into two grades, first and second class; there are also sub-surgeons and one-year volunteer surgeons, who rank as non-commissioned officers (with officer's sword-knot).

As a rule, a surgeon-major is the senior medical officer of a regiment, and surgeons or assistant-surgeons of battalions and smaller detached units, etc. The total number of medical officers proper in the whole Army, counting Bavaria, is, according to the last budget, 2068.

To the headquarters of each army corps is attached a Corps Staff Apothecary, who superintends, under the direction of the Surgeon-General of the Army, the procurement of medicines, etc., for the dispensaries of the several hospitals in the corps district. Apothecaries (who, as before stated, belong to the higher officials of the military administration) are appointed by the War Ministry on the recommendation of the Surgeon-General of the Corps; they have the standing of officers, but are without relative rank.

Hospital dispensaries are usually placed under the immediate charge of a medical officer, by the chief medical officer. Assistance is given in the dispensaries by one or more one-year volunteer apothecaries, *i. e.* pharmacists who wish to discharge their liability to military service in this way.

There is a Hospital Administrative Personnel which is recruited from non-commissioned officers with at least eight years' service, and who are divided into chief hospital inspectors, inspectors of hospital administrations, and hospital inspectors.* They need not be, and indeed rarely are, medical men; their duties are to take charge of the various medical stores and other material in the hospitals, being responsible to the Supply De-

partment for their preservation, etc. These officials have been continued in service notwithstanding the change in hospital administration, which has been transferred from a branch of the Military Economic Department to a specially instituted department (Medical Division) of the War Ministry.

The Bearer Companies of the war formations are mobilized from the train battalions, and have no existence 'or merely a "cadre" in time of peace; there is, however, a large force of "*Lazareth gehulfsen*," or hospital assistants, maintained in time of peace, one to each company, battery, etc., and made up of men who have been trained in minor surgery and in "first aid," and have the rank and pay of non-commissioned officers. The total number on the last budget was 3848.

Suitable men, who have been fairly instructed as soldiers for six months, are detailed, under the direction of the Surgeon-General of the Corps, as sick-attendants or nurses (*Kranken warter*) at garrison hospitals, where they are trained for service with field hospitals in time of war; their number is of course not fixed, but they may be said to vary from 400 to 600. There are a few civilians also hired for this purpose, from 400 to 500 in all.

War Organization.—The War Sanitary Order of January 10th, 1878, fixes the organization of the Medical Department of the German Army in the Field as follows: One Surgeon-General in Chief in Berlin, one Surgeon-General attached to Imperial headquarters, one to each independent army, one to each army corps, one Division Surgeon to each division.

Two medical officers are attached to each battalion of infantry (of four companies, about one thousand total strength), and one hospital assistant to each company. Two men per company are trained as litter-bearers. A medical stores wagon is attached to each regiment (three battalions). A regiment of cavalry has three medical officers and four hospital assistants—one per squadron; a medical stores wagon is also attached. The light artillery has two medical officers for each battalion (of three or four batteries), and a hospital assistant for each battery. The heavy artillery also has two medical officers for each battalion (four batteries), and hos-

*The total number in 1888 was 191—forty-seven of the first, thirty-two of the second, and 112 of the third grade.

pital assistants as in the light artillery. The staff troops have a medical officer and hospital assistant with each unit.

It will be observed from the foregoing that the regimental sanitary organization is very clearly defined. It forms the first line of medical assistance in active service, and its field of work in battle lies between the skirmish line and the collecting-stations.

The medical units comprise the regimental aid already described, bearer companies, field hospitals, lines-of-communication hospitals, and base hospitals.

The Bearer Companies are integral parts of the train battalions of the army corps to which they belong, and are numbered "First Bearer Company of the — Army Corps," etc., etc. One of them is attached permanently to each division, and one is kept at the disposal of the Corps Commander and is attached to the Corps Artillery. Each is divided into two divisions, each complete in itself. The establishment of a bearer company is: Seven medical officers, one paymaster, one apothecary; officers of the train, one captain, two lieutenants, three under-officers of the train, three lance-corporals of the train, fourteen privates of the train, twelve soldier servants of the train, seven tradesmen, one sergeant-major of the bearer company, fifteen under-officers of the bearer company, two buglers of the bearer company, 176 lance-corporals and stretcher-bearers, eight hospital assistants, eight sick-attendants,—total, 261. Also thirteen saddle-horses for officers, six troop ditto, twenty-six draught, and two spare draught,—total, forty-seven; also thirteen two-horse carriages.

The carriages of a bearer company are eight ambulances, two medical stores wagons, two baggage wagons, and one provision wagon—all two-horse. The ambulances are of the 1872, 1874, or 1877 patterns, and carry two severely and three slightly wounded men. Wagons of the former patterns are equipped with seven, those of the 1887 pattern with nine, stretchers, so that a bearer company with old equipment has fifty-six, that with new seventy-two; with each stretcher a knapsack containing dressings is supplied. On each of the wagons of a bearer company are carried two shovels, one pickax, one ax, and one hatchet. In action the bearer

companies form the second line of assistance; they work between the collecting-stations established by the regimental medical service, and the dressing-stations formed by themselves.

The Field Hospital constitutes the third line of medical assistance. For each army corps of two divisions are mobilized twelve, and for each corps of three divisions eighteen, field hospitals, each of which can receive 200 wounded or sick and can be divided into two sections. The establishment of a field hospital is as follows: Two surgeons-major, three assistant surgeons, one apothecary, one hospital inspector, one accountant, one assistant apothecary, one sergeant ward master, one under-officer clerk, one under-officer stores-keeper, nine hospital assistants, twelve sick-attendants, one cook, two transport under-officers, two transport lance-corporals, one transport trumpeter, nine transport drivers, eight officers' servants,—total, fifty-six, officers and men;* five officers' riding-horses, five troop ditto, twenty draught,—total, thirty horses; one two-horse baggage wagon, two two-horse medical stores wagons, three four-horse material and stores wagons, one two-horse carriage for officials,—a total of seven carriages. The medical stores and baggage wagons are the same as those of bearer companies, and in the former are carried the hospital stores required, a coverlet and a pair of sheets for each patient,—but no other bedding, which is obtained locally by requisition, and no tents; all stores have been reduced to the lowest possible number, so as to diminish the transport and increase the mobility of these hospitals.

The Lines of Communication and War Hospitals are, as a general rule, taken charge of by the auxiliary societies for aid to the wounded. For the war hospitals which are formed to take over the wounded who cannot be moved when the field hospitals start to follow their corps, each army corps mobilizes nineteen medical officers, three apothecaries (six other officials), twenty-seven hospital assistants, three under-officers, thirty-six

*Field hospitals may also be equipped with four two-horse material wagons, and one two-horse ambulance wagon, in place of the four-horse material and stores wagons; in which case they have twenty-eight horses and nine carriages.

sick-attendants, twenty-four train soldiers, and three cooks. All persons in medical units wear the Geneva Cross above the left elbow.

The War Sanitary Personnel and Transport embodies sixty-three bearer companies, 258 field hospitals and twenty war hospitals, with a total of 2111 medical officers, 189 train officers, 1338 officials, 29,673 non-commissioned officers, 10,701 horses, and 2625 carriages.

VI. THE AUSTRO-HUNGARIAN ARMY.

In peace the Sanitary Corps consists of the headquarters and twenty-six sections; in war, in addition, there are field and reserve sanitary sections formed upon "cadre" furnished from the peace establishment, and sanitary sections from the hospitals of the order of Teutonic Knights.

Each Sanitary Section is assigned to a garrison hospital, and is known by its number, which is identical with that of the military division to which it is attached. The Sanitary Corps is commanded by a special corps of non-medical officers, eighty-three in number, and comprises besides 2834 men; in war it embraces 400 officers and 21,200 men.

*Military Sanitary Establishments** for the reception and treatment of the sick and wounded, are divided into: Permanent Sanitary Establishments, consisting of the garrison hospitals and branches, troop hospitals, infirmaries, military bathing and water-cure establishments, and fortress hospitals; and Field Sanitary Establishments, consisting of divisional sanitary establishments, field hospitals, field infirmaries, reserve hospitals (on the theatre of war), halting-places for the wounded on the line of march, and field ambulances (railway, ship-ambulances, etc.). In the field sanitary establishments may also be included the reserve hospitals exterior to the theatre of war, the reserve hospitals and convalescent establishments provided by patriotic societies or private individuals, and, finally, the "Clothing and Sanitary Material Field Depots." Divisional sanitary establishments belong to the reserve of the first line; the remaining establishments to the reserve of the second line.

The Military Sanitary Establishments are

* Report of Captain Otto L. Hein, First U. S. Cavalry, Military Attaché at Vienna, Austria.

under the direction of military medical officers, and are assigned to divisions of sanitary troops, or men who have been trained as "bandage- and litter-bearers, for carrying out the hospital service." The sick, wounded, and hospital *personnel* are required to obey all orders given by medical officers pertaining to the sick and to the performance of duties in the hospital. The senior medical officer is, however, only invested with disciplinary power of punishment over his subordinate medical officers, except when in charge of a railway or ship ambulance, when he also exercises this power over the enlisted sanitary *personnel*.

The military command over the entire *personnel* of each establishment belonging to the combatant strength of the Army, is exercised by the commandant of the sanitary division attached to the hospital. Those establishments which have no sanitary divisions are assigned regimental subaltern officers for the exercise of military command, who have the disciplinary power of punishment over the *personnel* of the hospital belonging to the combatant strength of the Army.

The reports and records of a sanitary establishment are signed jointly by the senior medical officer, and commandant of the sanitary division; but matters pertaining solely to the functions of either require only the signature of the one concerned.

Garrison Hospitals stand first in the Permanent Military Sanitary Establishment, and are organized at all large garrison stations, and, in addition to other purposes, are charged with the training of surgeon volunteers for the medical service and the assistant sanitary *personnel*. At present there are twenty-six of these hospitals—two in Vienna, two in Pesth, one each at Linz, Olmutz, Theresianstadt, Bruner, Comorn, Loibash, Trieste, Ragusa, and Mostar, and one at each of the head-quarter stations of the 1st, 3d, 5th, and 13th Corps; some have branches. They are numbered consecutively: for example, "Garrison Hospital No. 7, Grau," "Garrison Hospital No. 11, Prague—Branch Headochin." On mobilization, the garrison hospitals furnish the divisional sanitary establishments, field hospitals, railway sanitary trains, and ship-ambulances.

Every hospital is an independent establishment, under its own staff of medical officers, chaplains, and accountant officers, and a sanitary division. A medical officer, with the rank of field officer, is in charge, and a captain or lieutenant of the "Armee Stand" superintends the administration and economical service.—The latter duties, in the case of the smaller garrison hospitals, are performed by an officer of the sanitary division. There is likewise an apothecary attached to every garrison hospital. In military and administrative matters these hospitals are subordinate to the brigade commanders. They are enlarged on mobilization to afford accommodations for a maximum of 1000 patients.

The *personnel* of the Vienna hospital consists of twelve medical officers, two officers of the Armee Stand, one chaplain, one accountant officer, sixteen officers' servants, four principal division officers, 190 principal division men, one instruction division officer, fifty-nine instruction division men,—total, twenty-one officers and 265 men. This is the largest hospital in the Empire. The smallest garrison hospital, at Ragusa, has a *personnel* of three medical officers, one chaplain, one accountant officer, five officers' servants, two principal division officers, thirty-four principal division men, one instruction division officer, seventeen instruction division men,—total, eight officers and fifty-six men. The total strength of the twenty-six garrison hospitals amounts to 274 officers and 3025 men.

A Troop Hospital is established at every military station possessed of a garrison of more than 500 men that has no permanent garrison hospital and is charged with the treatment of the ill and the training of litter- and bandage-bearers (one non-commissioned officer and three privates per company). They are independent establishments, with an organization similar to that of a garrison hospital, but their staff is not exclusively attached to them, but is furnished from the regiment or corps from which their patients come. A regimental medical officer is in charge, and a line officer is assigned for the supervision of military order and discipline, as well as for the management of economical administration. The nurses and attendants are detailed generally from those members of regiments

who have been trained as bandage- and litter-bearers, but are sometimes furnished by the sanitary troops (a regular organization, one section of which is attached to each army corps). On mobilization the troop hospitals are enlarged for the reception of the sick and wounded, and are designated Reserve Hospitals, or Fortress Hospitals in case they are located in fortified places. Additional troop hospitals are organized in some of the recruiting-district stations, to provide for the increased demands incidental to the mobilization of the Army. The hospitals of the military schools, of the invalids, and of the military prisons are organized on a similar model, but form an integral part of these establishments. The invalid hospital at Thenau has a special branch for the treatment of the insane.

In garrisons numbering from 300 to 500 men, Military Infirmaries may be established by order of the military territorial commanders, for the reception and treatment of light cases, and of severe cases where removal to a regular hospital is not possible. Infirmaries may also be established on special occasions, such as a large concentration of troops or the breaking out of epidemic or contagious diseases, for such periods as may be necessary. The medical officer in charge, and the hospital *personnel*, are detailed from the strength of the regiments; and a line officer is assigned for the supervision of the military and administrative service. The duties of nurses and attendants are generally performed by bandage-bearers, and exceptionally by sanitary-soldiers. As the military infirmaries form subdivisions of their respective regiments, those located in the receiving districts are enlarged on mobilization or disbanded if not required.

Military Bathing and Water Cure Establishments are organized at the more important springs, as Baden (near Vienna), Karlsbad, Schonau (near Toplitz in Bohemia), Mehadia, Hof-Gastein, Pystian, Toplitz in Hungary, Buda-Pesth, Topulsko in Croatia, and Toplitz in Corinthia, but are for the treatment of special cases. Some receive only officers; some both officers and men; some only men; and they vary in system and treatment. Most of these are open only during the summer season, and are provided with the necessary staff and attendants from

the garrison hospitals or from the sanitary troops. Every establishment is under the direction of a medical officer. In Karlsbad, Schonau, and Mehodia, field officers of the retired list are permanently in charge as "Military Bath-house Commandants;" in the other cures, officers are detailed as commandants during the bathing season as "Military Bath-Inspectors." In war, the military bathing establishments may be enlarged for the reception of the sick and wounded from the front.

In those fortresses of the Empire which are in a state of preparation for defense, such as Cracow, Przemyśl, etc., provision for hospital accommodation is based upon the requirements of their increased garrison on mobilization. Fortresses which contain garrison hospitals enlarge them, and eventually establish branches sufficient for the reception of a maximum of 1000 patients, but when the number exceeds this figure Fortress Hospitals are established. Fortresses which have troop hospitals or infirmaries in time of peace, convert them into fortress hospitals on mobilization. Those which have small garrisons, and insufficient even for the erection of fortress hospitals, enlarge their infirmaries to the extent that may be necessary. Fortress hospitals are administrative and independent sanitary establishments, and have a special *personnel* attached to them.

The passage from the peace to the war establishment is effected by organizing the divisional sanitary establishments and field hospitals, railway sanitary trains, and ship-ambulances, preparing halting-stations on the lines of communication for the wounded, furnishing the clothing and sanitary material; and finally by enlarging the fortress sanitary establishments.

The principal object of the sanitary service in the field is to transport the wounded from the battle-field as rapidly as possible to the sanitary establishments in the rear, where they may receive thorough surgical treatment and regular hospital care; and to distribute the sick and wounded over as large an area as possible in the interior of the Empire. The wounded are first collected by the litter-bearers, and given such assistance and care as may be possible. In the first dressing the bearers utilize the bandage-

packets with which every soldier is furnished—carried by the cavalry and train troops in the upper right-hand blouse pocket, and by all other troops in the left-hand trousers pocket—each packet containing, wrapped in a piece of vellum, a piece of iodized muslin, three to four grammes of cotton, a compress bandage, and a piece of waterproof.—As the cavalry, artillery and technical troops have no bearers, the duties of the latter are performed by sanitary-soldiers. As a rule, one collecting-station is established for every infantry brigade, about 1000 paces in the rear of the centre of the fighting line; there the wounded receive only such assistance as may be necessary for their removal to the dressing-station. The dressing-station is established from 3000 to 5000 paces in the rear of the centre of the fighting line of the division, in or near large buildings or in tents. Here the wounded of the division are collected and receive their first surgical treatment, after which they are either carried in the ambulance wagons to the ambulance hospital, or removed at once to the field hospitals in the next line, or if possible directly to the permanent hospitals. To avoid unnecessary and repeated examinations, the wounded are provided with diagnosis cards, attached to a blouse or great-coat button, giving nature of wound, treatment received, and condition for transportation. If the distance to the next sanitary establishment, railway station or ship-landing is too great to be covered in one march, a connecting link (an ambulance hospital) is established, where the wounded are refreshed, and their bandages rearranged if necessary. When the ambulance hospital (one to each division of infantry) is not needed for this purpose, it is sometimes combined with the dressing-station.

The Field Hospitals are mobile establishments, transported by wagon, one being allowed for every division of infantry. They follow the movements of the Army, and are only established when needed, being located if possible in large buildings as far to the front as possible, from 10,000 to 15,000 paces in the rear of the fighting line. To render these hospitals able to follow the marching columns, necessary measures are taken to evacuate them as soon as possible, by send-

ing the wounded to the permanent hospitals in the rear. The transportation of the wounded from the field hospitals to the rear is effected by means of ambulance or other wagons fitted up for the special purpose; by rail, on the sanitary trains, for severe cases; by temporary sanitary trains, for light cases; by water, in the ship-ambulances. "Halting-stations" (*Kranken-halt-stationen*) are established at suitable points on the lines of communication, for the purpose of giving a short rest to men journeying to the rear, and providing them with medical relief, refreshments, etc.

For the reception of the wounded incapable of transportation, stationary or reserve hospitals are established in place of mobile sanitary establishments. Light cases and convalescents are placed in the field infirmaries established on the theatre of war. The sick and wounded sent home are distributed among the military sanitary establishments existing in time of peace, the reserve hospitals newly established beyond the theatre of war, and finally the hospitals and convalescent establishments organized by private societies and individuals. The distribution of the wounded is regulated by the Minister of War. A volunteer sanitary service, already organized in time of peace, co-operates extensively with the military service in war.

The uniform and equipment of the bearer detachments are the same as those of the respective corps to which they belong, their sole distinguishing mark being a black and yellow band worn above the left elbow. The non-commissioned officers carry their rifles; the privates wear a sapper's sword, and carry a pouch filled with bandages and a large canteen of water. As soon as they have performed their work on the battle-field, they return to their respective organizations. The company bearer belongs to the combatant class and is not neutralized.

The flags employed to designate the field sanitary establishments, the arm-bands worn by the sanitary *personnel*, and the sanitary wagons, all bear the Geneva cross. The flags are placed alongside of the national colors (black and yellow).

When the Army is mobilized, a Divisional Sanitary Establishment is organized for every division, the purposes of which are to render

first surgical treatment to the wounded, and to transport them from the relieving- to the bandaging-stations, and from there to the next line of sanitary establishments. The sanitary establishments of the forty-eight infantry divisions and eight cavalry divisions are numbered consecutively with their respective divisions: for example, "Infantry Divisional Sanitary Establishment No. 36," "Cavalry Divisional Sanitary Establishment No. 4." These establishments are directly subordinate to their respective division commanders, and are under the supervision of the division chief medical officers.

Every Infantry Divisional Sanitary Establishment is equipped for forming two relieving (collecting) stations, one bandaging (dressing) station, one ambulance (field hospital), one sanitary-material reserve. Each has a staff of medical officers, and a field sanitary division. During and after battles, until the establishment is evacuated, the regimental medical officers of the division are also on duty with it. The surgical duties at the stations are performed by the regimental medical officers, under the supervision of the division chief medical officer, who generally is stationed at the central point—the dressing-station. As a rule, the senior medical officer and the next two in rank of each infantry regiment are designated for attendance at the dressing-stations, and the remaining regimental medical officers at the collecting-stations. To each divisional establishment is also assigned a field sanitary column of the "Teutonic Order." The horses of the ambulance and other government wagons are furnished by the First Zug of the train squadron attached to the division. The maintenance of military order and discipline in the establishment, and its economical administration, are in charge of the commandant of the field sanitary division.

The ambulance (hospital) either coöperates directly with the dressing-station, or serves as a connecting link between the latter and the sanitary establishments in rear. When the troops remain in cantonment for a considerable period, the ambulance (hospital) may be employed as an infirmary, by order of the division commander. The sanitary-material reserve contains a supply of medicines and dressings for replenishing the stores

which have been expended at the collecting- and dressing-stations; the stores of the sanitary-material reserve are replaced by the clothing and sanitary-material field depots. The field sanitary column is generally attached to the divisional ambulance (hospital). The sanitary-soldiers of the column are furnished by the field sanitary division; the train soldiers and government horses, by the train squadron. The divisional sanitary establishments of the 1st, 8th and 18th Infantry Divisions are organized especially for mountain warfare. The infantry divisional sanitary establishment usually marches at the head of the baggage-train of the division, in the normal order of march.

The collecting- and dressing-station division and wagons, under command of the commandant of the field sanitary division, belong to the fighting train; but the ambulance and sanitary-material reserves and wagons, under command of the second officer of the field sanitary division of the Teutonic Order, are with the baggage train. At a halt, or in camp, the infantry divisional sanitary establishment is employed as a collecting-point for the sick and wounded who are designated to be sent to a hospital; men unable to travel are placed, by order of the medical officers, in the wagons of the establishment, and upon arriving in camp are, if recovered, sent back to their regiments, or, when their number is too great to admit of all being put in the wagons of the establishment, the least exhausted are relieved of their arms and accoutrements, which are placed in the wagons, and they are left in charge of sanitary-soldiers detailed for this purpose. The medical officers of the establishment always remain with the hospital wagons during the march; and four mounted staff cavalry orderlies are attached to every establishment during battle, to establish communication quickly between the dressing-stations and the ambulance (hospital), and the collecting-stations and troops, and to carry orders, etc.

The collecting-stations are placed at a shorter distance from the fighting line in a covered or hilly country than in an open country; the mean distance being 1000 paces, because this is as far as the bearers are able to carry the wounded rapidly without having

to stop to rest. Each collecting-station is placed as near as possible to the line of retreat of its brigade, so as not to interfere with the advance of the troops who have not yet come under fire, and must if practicable be upon a wagon-road connecting with the dressing-station. Buildings, hollow ground, trees, etc., which afford protection against direct fire and the glaring light of the sun, with water, straw, wood, etc., in the neighborhood, are the points recommended for establishing the collecting-stations, but as these advantages are seldom found combined, it is demanded that existing facilities be utilized to the best advantage. Each station is marked by day by two flags, one with a red cross on a white field, and the other containing a horizontal black and yellow stripe; at night by a white lantern with a red cross.

The dressing-station is established near the line of retreat of the division, and 3000 paces is its minimum distance from the fighting line, under the most favorable circumstances. When possible it is located in a building or shed, the essentials being ample wood, water, and straw in its vicinity, an easy exit, wagon communications, etc.; it is marked similarly to the collecting-stations. When located in the open, the hospital and field sanitary column tents are pitched for its use.

The hospitals are generally located in the orders for the disposition of troops issued by the chief of staff of the division on the eve of battle, otherwise by the division chief medical officer.

The ambulance (hospital) is combined with the dressing-station when the field hospitals are so near the battle-field that the wounded can be sent directly to them, or when the dressing-station is established on a railway or river and it is possible to transport the wounded directly to a distant reserve or distributing hospital.

An infantry divisional sanitary establishment is composed of: Medical officers—chief and two assistants; sanitary division—two officers and seventy-five men; train division—wagons, horses and drivers from the train troops, the latter commanded by a commandant—a sergeant-major; field sanitary column of the Teutonic Order (from the sanitary troops one corporal and twelve men, from the train troops one corporal, twelve men and

twenty-three horses), and four ambulance wagons and one sanitary wagon packed with sanitary material* belonging to the Order; four mounted cavalry orderlies, during battle.—The total strength of an infantry divisional sanitary establishment is three medical officers, two sanitary officers, 158 men, 113 horses, and twenty-five wagons.

The distribution of the *personnel*, horses and wagons among the subdivisions of an infantry divisional establishment, is as follows: At collecting-stations—six to eight regimental medical officers (only during battle), one non-commissioned officer and seventeen men of the sanitary division; one non-commissioned officer, eighteen men, one riding and sixteen draft horses, and four ambulance wagons of the train troops—the non-commissioned officer of the sanitary division is commandant of the relieving-station division. At dressing-stations—nine to thirteen regimental medical officers (only during battle); commandant and thirty-nine men of the sanitary division; two non-commissioned officers, sixteen men, twenty-three horses, and five wagons (including two hospital wagons of the train troops).—For the transportation of the wounded to the rear from the dressing-station are also employed the empty wagons returning from the battlefield, requisition wagons, etc. Three medical officers, one officer and thirty-three men from the sanitary troops, twenty-three men, forty horses and eight wagons from the train troops, at each ambulance (hospital), including field sanitary column of the Teutonic Order. One sanitary officer, four train soldiers, eight draft horses, two four-horse sanitary-material wagons, to constitute each sanitary military reserve.

Every Cavalry Divisional Sanitary Establishment is equipped for forming one collecting- and one dressing-station. These stations are generally combined. The surgical treatment of the wounded is performed by the regimental medical officers of the cavalry, as the establishment is not provided with a medical staff. The cavalry sanitary division not only furnishes the attendants

and nurses, but also provides bearers for the regiments; its strength is one sergeant-major and seventeen men. The wagons, horses and drivers of the cavalry train divisions are provided by the train troops. There are also one sergeant, twelve men, twenty-three horses, six wagons, including four four-horse ambulance wagons for the transportation of the wounded from the relieving- to the bandaging-station.—The wounded are conveyed to the hospitals in rear by means of hired wagons. The total strength of each cavalry divisional sanitary establishment is thirty-one men, twenty-three horses, and six wagons.

On the march, in camp and cantonment, the duties of this establishment are similar to those of the infantry divisional sanitary establishment; and the position of the collecting- and dressing-stations is generally designated by the division chief of staff.

In the Field Hospitals the wounded receive their first thorough medical treatment. Forty are established by the Army, and two by the volunteer sanitary service, on mobilization, at the rate of one per infantry division. They are not specially attached to particular army corps, but are directly subordinate to the chief of staff, who assigns them, as necessary, and the corps in turn place them at the disposal of the divisions of infantry.

Every field hospital can accommodate 600 patients, and is divided into three sections, each complete in itself and capable of holding 200 wounded men. Every hospital is furnished with a suitable number of medical officers, chaplains, accountant officers, apothecaries, and a field sanitary division and dispensary. The sanitary material, bedding, clothing, etc., are carried in government wagons especially arranged for that purpose, and horsed by hired teams. A transport column of the Red Cross Society is assigned each hospital for the transportation of the wounded to the rear. The *personnel* of the field hospital comprises one chief and nine regimental medical officers, one military chaplain, three accountant officers, three apothecaries, one armorer (to take charge of the arms and accoutrements of the wounded); in its field sanitary division one field officer as commandant, two captains or lieutenants, 177 men; from the train troops, two black-

*Note the clothing, equipments, and arms of the men, besides the entire train and sanitary stores, are also provided and replenished by the Teutonic Order.

smiths and four four-horse teams (for the transportation of the hospitals), five two-horse wagons (for the transportation of the officers and officials), 112 hired horses (for the wagons), and fifty-six civilian drivers under charge of mounted civilian foremen; the transport column of the Red Cross Society—consisting of fifteen two-horse ambulance wagons and one four-horse wagon containing sanitary stores furnished by the volunteer sanitary service, the horses being hired,—a sanitary division, consisting of twenty-four Landwehr or Landstrum men, under the command of a non-active officer, forms the *personnel* of this column. The total strength of a field hospital, including transport column, amounts to twenty-one officers, 276 men, 149 horses, and forty-five wagons.

The Field Infirmaries are established at suitable points on the theatre of war, or on immediately adjoining territory, for the reception of light cases, convalescents, and broken-down soldiers in need of temporary rest, and to avoid the necessity of sending them to more distant sanitary establishments; their number and extent are regulated in accordance with the temporary necessities of the service, but there must be at least one field infirmary for each army corps, with accommodations for not less than 500 patients. Each infirmary has one medical and one sanitary officer, two men of the sanitary troops, and a number of horses and attendants furnished by the *Etapen* troops on those lines of communication upon which the regular traffic between the Army and the interior takes place.

At the theatre of war, reserve hospitals are established, intended to support or replace the field hospitals, in order to permit the latter to be pushed again as rapidly as possible in advance for the immediate reception of the sick and wounded sent from the field and field hospitals, and for the temporary reception of the sick and wounded sent to the collecting-point for transportation to the rear. Their number and capacity are regulated in accordance with the requirements of the service, but there must be at least one reserve hospital for 200 patients for every division. Their *personnel* and material are furnished from the reserves, under the orders of the Chief of Intendence; and field apothecaries

and the means of transportation are furnished when needed. They are numbered consecutively, and are subordinate to the Chief of Intendence of the Army. A reserve hospital for 200 patients has one medical officer, one chaplain, and one apothecary, besides one officer and seventy-eight men of the sanitary troops.

Exterior to the theatre of war, reserve hospitals are also established in the interior; for which purpose the localities and arrangements of the troop hospitals and infirmaries may also be employed. They are organized after the manner of the garrison hospitals, and are classified as field sanitary establishments and named after their respective stations, as, for example: "Reserve Hospital at Zuain."

Stations or Halting-Places for the Sick and Wounded are established at intervals on those lines of communication (*Etapen* lines) upon which the transportation of the sick and wounded takes place, and are for the purpose of giving a short rest to men proceeding to the rear, and of providing them with medical assistance. There are two classes of these—those where men passing through receive refreshment and attendance, but with no sleeping accommodations; and those with sleeping accommodations and furnishing regular medical treatment.—The former are established at railway stations where long stops take place. The comfort of the wounded is attended to by the *Etapen* service, and medical treatment by civilian physicians, who are established at the railway stations from which trains are despatched, and at all stations on the road at which the transportation must stop over night. The *personnel* and material of the halting-stations are furnished by the Intendence of the Army. Two stations, each accommodating 200 men, are provided for every army corps; there are besides numerous halting-stations which are established by the volunteer sanitary service. A section for 200 patients has one medical officer and one non-commissioned officer and six men of the sanitary troops. The horses and attendants are furnished by the *Etapen* troops.

Ambulance Field Sanitary Establishments are mobilized in war and divided into "railway sanitary trains," "improvised sanitary

trains," and "ship-ambulances;" they are for the purpose of transporting the severely wounded from the field and reserve hospitals, and directly from the divisional sanitary establishments, to the permanent hospitals in the interior of the Empire. Such are independent establishments, and have a staff of medical officers and apothecaries, and a field sanitary division, besides the necessary means for the care and refreshment of the wounded during the journey.

At least twenty-six railway sanitary trains are mobilized by the Army, and six to twelve are provided by the "Order of Malta;" every train accommodates 104 patients. Also, improvised or temporary sanitary trains are formed for the reception of light cases, in case the railway sanitary trains are insufficient to accommodate them; merchandise and passenger wagons, fitted up temporarily for the purpose, are used. Each train has a medical or combatant officer in charge, its sanitary *personnel* and material being drawn from the reserve under the Chief of Intendence. Refreshments and medical attendance are only furnished at stopping-points.

Under the title of Ship-Ambulances, tow-boats are equipped as movable hospitals, in case of necessity, for the transportation of the wounded on the Danube, Thein, Drau, and Save Rivers; each boat can accommodate from 116 to 123 patients, and has a *personnel* consisting of two medical officers, one apothecary, two non-commissioned officers and twenty-five men of the sanitary troops.

The Clothing and Sanitary-Material Field Depots are charged with supplying sanitary material, clothing, equipment and field supplies to the troops and reserve establishments of the field army; also to those sanitary establishments (field infirmaries, reserve hospitals, halting-stations, etc.) which are created when necessary by the Chief of Intendence. Each army and independent corps, or division, is allowed one such depot.

RECAPITULATION OF THE SANITARY ORGANIZATION OF THE AUSTRO-HUNGARIAN ARMY.*

In time of peace the number of medical officers for each Infantry regiment, of four

battalions, is four for the regimental staff and the battalions, and one for the *Ersatz* (reserve) battalion cadre. The regimental medical officers are: Regimental *Arzte*, first and second class, with the rank of captain of the first and second class; and *Oberarzte* (which may be rendered first assistant surgeons), who have the rank of first lieutenant. Some of the regiments have assigned to them a nondescript medical official known as an *Oberwundarzt*, which literally would mean "over surgeon," using *surgeon* in a sense inferior to that of physician or doctor.—The French have a term, "infirmier-major," which describes their functions more accurately. These are not generally doctors of medicine, do not belong to the corps of medical officers, and their relative rank is that of second lieutenant. The assignments of medical officers to regiments in peace, however, are often made in excess of the numbers laid down above, as some infantry regiments have as many as six medical officers. When all the battalions of the regiment are in a single garrison, which is not often the case, a less number of medical officers is required than when some of the battalions are detached. In time of peace the infantry companies do not carry on their rolls any bearers or *Blessirten-trager*, but in order that there may be *trained men on hand, in case of war*, for the positions of *Blessirten-trager* and *Bandagen-trager*, one private in each company and one corporal in each battalion (twenty men per regiment) are kept under instruction by the senior medical officer.

In case of mobilization, the number of medical officers in each regiment is raised to eight, of whom seven are with the staff and the field battalions, and one with the *Ersatz* battalion. These additional officers are obtained from the reserve officers of grades similar to those held by the active regimental medical officers, and from the one-year volunteer *Assistenz-arzte*, or second assistant-surgeons. These latter officers have the rank of second lieutenant.

Each company on a war footing has three *Blessirten-trager*, and each regiment has five *Blessirten-trager* non-commissioned officers and eight *Bandagen-trager*—"bandage-bearers," *i. e.* dressers, or hospital assistants.

The independent Rifle battalions have each

* From the Military Information Division, Adjutant-General's Office, U. S. A.

one medical officer, in time of peace or war, who is either a first- or a second-class regimental *Arzt*. In time of war the battalion has one non-commissioned officer bearer, and two hospital assistants. Each company has the same number of bearers as an infantry company.

Every military medical officer carries on his person in the field a small pouch containing a few medicines, some court-plaster, absorbent cotton, etc., and a pocket instrument-case. Every non-commissioned officer and soldier of the combatant arms is supplied, on mobilization, with a small dressing-pocket which contains the necessary material for the first dressing of a wound, and which is carried constantly on the person in one of the pockets of the jacket or trousers. Such other sanitary material as is immediately necessary on the march or on the field of battle is packed in knapsacks or pouches, and carried, in cases of emergency, by the body-bearers and bandage-bearers; these knapsacks or pouches are habitually carried on the march in the covered baggage-wagon assigned to the staff of each particular organization (regiment, battalion, or *Abtheilung*). The regimental or battalion train contains no wagon or van especially assigned to the Medical Department. For operations in mountainous countries, each battalion has, in addition to the supplies in the pouches of the bearers, a reserve of sanitary material for the first dressing-stations, which is packed in two panniers and carried by a pack animal. This supply of material is at the disposal of the medical officer of the battalion.

The regular number of medical officers for a Cavalry regiment is three, though, as in an infantry regiment, the number actually on duty may be greater or less than that prescribed by regulations. In time of war the regulation number of medical officers is also three. No enlisted men are carried on the rolls as bearers, either in peace or in war, and no enlisted men of cavalry are trained in sanitary duties in peace. The duties of the sanitary service for the cavalry are, in time of war, discharged by detachments of the sanitary troops.

To each one of the fourteen corps Artillery regiments the regulations assign two medical officers in time of peace, and to each

one of the forty-two divisional artillery regiments is assigned one medical officer.—These numbers are not strictly adhered to, however. In time of war two medical officers are allowed to each field artillery regiment, one of whom is generally taken from the reserve, and one additional medical officer is allowed for such regiments as have a horse battery division, the horse batteries being detached for service with the cavalry. No bearers are carried on the rolls in time of peace, but each field battery has in war four (two upper and two under) *Blessirten-träger*. The horse batteries have none, their bearer service being performed by detachments of sanitary troops, as in the case of the cavalry. To the staff of each corps and divisional artillery regiment are also attached in time of war, one corporal *Blessirten-träger* and two *Bandagen-träger* (privates). In time of peace a limited amount of instruction in hygiene and first aid is given to the enlisted men of artillery, much the same as that given to the enlisted men of infantry, but nothing is fixed as to the number of men that are to be kept under instruction in these branches. Sanitary material is supplied the same as with infantry units and carried in a similar way.

Regarding *Assistenz-Arzt-Stellvertreter*: One-year volunteer medical students have to serve a half-year of their time in the *Soldatenstand*,* and must serve as substitute *Assistenz-arzt* for a second half-year after gaining the degree of Doctor of Medicine. The half-year's service as *Assistenz-arzt-stellvertreter*, or substitute-assistant-surgeon, commences on the 1st of April or 1st of October immediately following the gaining of the doctor's degree, and this time, as already indicated, may also be included to make up the year's service in the *Soldatenstand*. This officer is, in rank, assimilated to the Cadet-Officer-Stellvertreter, a grade in the Austrian Army which corresponds very closely to that of *Porte-Epee*.

* *Soldatenstand* means, taken literally, "Soldier personnel," distinct from the classes of military officials. The *Soldatenstand* includes only combatant officers, non-commissioned officers, and privates, as well as the *personnel* of the sanitary service; and, in the Navy, the engineers, machinists, and engine-room forces generally. All the remaining persons on the military establishment belong to the class of "officials," or *Beamte*.

Fahnrich in the German Army. Immediately after the granting of the degree of Doctor of Medicine, an authenticated list of the doctor's diplomas is sent to the War Ministry, and on the basis of this exhibit appointments are made to the grade of *Assistenz-arzt-stellvertreter*, and the successful candidates are assigned to the various sanitary institutions and establishments.

The *Assistenz-arzt-stellvertreter*, during his time of service, is instructed both theoretically and practically. After the completion of his service he undergoes an examination on a prescribed list of subjects, and may then—if he is an applicant for a commission in the medical corps of the Army, and has satisfied all the requirements for admission thereto—be commissioned as *Oberarzt* or first assistant-surgeon. One-year volunteer medical students, who have served their half-year in the *Soldatenstand*, and are in receipt of the stipend for aspirants to the medical corps, must remain, immediately after receiving the degree of Doctor of Medicine, and before they can be appointed to the grade of *Oberarzt*, on probation for a while in order to acquire their special military surgical instruction. In case of mobilization, those substitute assistant-surgeons who are in active service and who are qualified for promotion are appointed to the grade of *Assistenz-arzt* (second assistant-surgeon). Appointments to this grade are also made from other sources.

VII. THE BRITISH ARMY MEDICAL STAFF AND THE MEDICAL STAFF CORPS.*

Up to the sixteenth century the value of military surgeons was gradually being acknowledged in England, but the temper of the times in regard to their encouragement may be estimated from what we read in Gore: "The poor soldiers, when severely wounded, were discharged with a small gratuity, to find their way home as best they might." This practice prevailed as based on the principle that "it cost more to cure a soldier than to buy a recruit."

At the time of the formation of a standing army, and toward the end of the Stuart period, the ranks of the medical officers were: Regimental Mate, Hospital Mate, Regimental

Surgeon, Apothecary to general hospital, Surgeon to hospital, Surgeon-General. A distinction of some importance between physician and surgeon was also made at this time, and existed till the middle of the eighteenth century—so much so that not unfrequently, during Marlborough's campaign in Germany, we read of the commander-in-chief promoting a surgeon to be a physician; and as late as 1764, Brocklesby wrote how necessary it was that the military surgeons should be educated as physicians. The two services, naval and military, were not so distinct during this period as they are now. Sir Thomas Longmore, in his "Life of Wiseman," writes: "Officers of all branches of the military service, and of all ranks, occasionally held commissions for sea service at one time, and at another time for service on land." During the campaigns of Marlborough it was generally considered effeminate to be ill, but eventually the terrible battles of that time, and the fever-stricken countries in which operations were carried on, gave the fighting man the benefits to which he was entitled.

At that period the clever administration, indomitable courage and perseverance of the senior medical officer, Sir John Pringle, kept the medical service prominent, and, under the greatest difficulties, proved absolutely the necessity for the presence of a proper proportion of the relieving element to the fighting strength. Medical officers then, and until 1796, not unfrequently held double commissions and could act in the double capacity of captain and surgeon. Sir John Pringle, the surgeon-general serving with the troops under Marlborough, initiated the system of regimental, field and general hospitals; and the records show that after the battle of Fontenoy, May 11th, 1745, a general hospital was opened at Ath, which cared for upwards of 600 wounded. In the same war a general hospital was opened at Ghent, which received 1500 sick and wounded.

The first assignment of medical officers and their hospitals to an army in the field, in anticipation of their being used, was in the Peninsular War; Sir J. McGrigor, afterwards director-general, was the principal medical officer, and the idea was that every regiment should take care of its own sick and in this way avoid crowding in the general hospital.

*From the Army Book of the British Empire, 1893.

This scheme answered its purpose then, as is proved by the fact that during the ten months' interval between the siege of Bruges and the battle of Vittoria 95,348 sick and wounded passed through the hospital, and yet, by the assiduous care of the medical officers, there were only 5000 sick on the eve of the battle, the ranks being recruited by convalescents who had been properly treated and returned to duty. This war produced many improvements, which were, however, chiefly confined to the interior economy and administration of general and regimental hospitals; while the organization, *personnel*, and general character of medical establishments scarcely underwent any change. Indeed, there was at this period no ambulance corps in the British service corresponding to the medical staff corps of the present times. A corps called the "Royal Waggon Train" was organized in 1812 for general transport and commissariat purposes—wagons with springs were especially designated as part of its equipment for the carrying of sick and wounded men,—but afterwards proved defective, and was finally broken up in 1833.

On the outbreak of the Crimean War, the "Hospital Conveyance Corps" was originated, recruited for the most part from military pensioners and other non-effectives. Its duties were the transportation of wounded from the battle-field to places of safety, and to supply general and other hospitals with attendants so as to prevent drawing on the effective ranks; also to take charge of the transport, and to furnish servants for the officers of the general medical staff. This establishment failed, owing, amongst other reasons, to the total want of training of the men composing the corps—they were not accustomed to such varied service, nor to work together; further, they were advanced in years and generally drunken and disorderly in habits. Indeed, before the actual hostilities had commenced, fresh men were enrolled and a new system organized. The medical staff officers oversaw in a general manner the work of the hospital conveyance corps, but there was no system of command, and neither discipline nor authority could be directly enforced by them.

In the beginning of 1857, after a short interregnum, when the Land Transport Corps

carried out the duties connected with the executive of military hospitals, there was practically no ambulance system. There were physicians and surgeons attached to corps, and there was a general medical staff service, but no cohesion or working form of organization; not the least important of the reasons for this inefficiency was the absence of medical supplies and appliances. It must be observed that the transport of the sick, which the Land Transport Corps had undertaken, is only one of the functions of a medical corps; the other and most important duties, those pertaining to conveyance of the wounded from the field of battle, and attending the sick and wounded in hospitals, still remained to be provided for; and as military medical officers had no connection with the Land Transport or any other corps, this provision was rendered more difficult. The regimental Orderly system, which has been in existence since the days of the Peninsular War, worked fairly well under regimental medical officers, but was open to disadvantages which rendered it necessary that the sick-attendants generally should be supplied from other services.

By royal warrant, June 11th, 1855, the first "Medical Staff Corps" was organized, consisting of nine companies, each seventy-eight strong, and arranged "to be employed in any way that may be required in the performance of hospital duties." There was scarcely any military feature in its organization, which fact materially facilitated its downfall three months later, notwithstanding the provisions of a second warrant, when (December 20th, 1855) the "Army Hospital Corps" was substituted therefor.

The failure of the "Medical Staff Corps" was mainly due to the doubtful and anomalous position in respect to its relations with the combatant authorities; the men of the corps for the most part acted in hospitals under medical officers who were not invested with military authority and who had no power of awarding punishment for offenses; a considerable proportion of them were undrilled and untrained in the strict requirements of discipline—this was the case not only as to the men, but with the stewards and ward-masters as well. The latter, though having the relative rank of non-commissioned

officers, had none of the corresponding powers of command, and were not permitted to wear on their uniforms the insignia of their rank. The corps was filled for the most part by the transfer of men of good character from regiments after a certain term of service, usually two years; and each man so transferred was required to pass a probationary period of three months in a military hospital before he was permanently appointed to the corps.

In 1858 a royal commission under the presidency of the Right Honorable Sidney Herbert was ordered for the purpose of inquiring into the regulations affecting the sanitary condition of the Army, the organization of military hospitals, and the treatment of the sick and wounded. The report of this commission was of the greatest importance to the medical service, leading to improvements not alone in efficiency but in the status and position of its officers. Through it, two fundamental changes were introduced—the remodeling of the department, and the organization of a practical Army Medical School. From this period a great tendency to improve the condition of military medical officers became manifest.

The regimental system (or that in which medical officers were an integral part of the regiment), which had existed for so long a period, and was still in force, though it had been of great service in the past, was found to be incompatible with the development of the Army medical service; and in consequence, in March, 1873, a royal warrant, devised by Mr. Cardwell, then Secretary of State for War, abolished the regimental system and placed all medical officers in one staff or department. Even up to 1889, those of the army medical staff doing duty with the Household Troops were purely regimental officers, but subsequent to this date no officers have been gazetted to the junior ranks, these being filled by the medical staff officers attached for duty; surgeon-majors of regiments are, however, still regimental officers, and as vacancies occur officers of the general list will be gazetted to fill them.

A second warrant, of same date, organized the Army Hospital Corps for extended duties in connection with hospital service. Two new ranks were created, entitled "Captain of

Orderlies" and "Lieutenant of Orderlies," while the rank of Apothecary to the forces, dating from 1854, was abolished. In the same year regimental hospitals ceased to exist, and it was directed that military hospitals should be organized and administered either as general hospitals, station hospitals, or field hospitals.

In 1877, authority was given to medical officers to command the officers, non-commissioned officers and men of the army hospital corps, and also all patients in military hospitals, as well as soldiers attached to them for duty. In 1881 the captains and lieutenants of orderlies were gazetted as Quartermasters, Army Hospital Corps, and placed on the same footing as regards pay and retiring allowances as quartermasters of infantry.

In 1883 a committee, under the presidency of Lord Morley, was appointed by the Secretary of State for War, to inquire into the organization of the army hospital corps, hospital management, and nursing in the field. Several valuable recommendations were made, among which were: Undivided control of hospitals to be vested in medical officers; the medical service of the Household Troops to be assimilated with that of the Army; opportunity to be afforded for practice, in peace, in the use of war equipment, both as regards bearer companies and field hospitals; and the assimilation of the army hospital corps with the army medical department, both of which were to wear the same uniform.

In 1884, officers of the army medical department and the quartermasters of the army hospital corps were designated "The Medical Staff," and the warrant officers, non-commissioned officers and men of the army hospital corps were designated "The Medical Staff Corps." This organization still obtains.

On the Army Service Corps now devolves the duty of supplying transport for the medical department; the transport officer of this corps takes orders from the medical officer commanding the bearer company or field hospital to which the transport is attached.

In 1889 a committee, under the Earl of Camperdown, was appointed to inquire into the pay, status and conditions of service of the medical officers of the Army and Navy;

and in 1891 a royal warrant was promulgated altering, in some respects, the designation of the department ranks of the medical staff, and providing for the grant of sick-leave to officers of said staff on the same conditions as those which are applicable to regimental officers. This warrant laid down substantive titles for officers of the medical staff as follows: Surgeon-Major-General, Surgeon-Colonel, Brigade-Surgeon-Lieutenant-Colonel, Surgeon-Lieutenant-Colonel, Surgeon-Major, Surgeon-Captain, Surgeon-Lieutenant—these to carry precedence and other advantages attaching to the rank indicated by the military portion of title, but with limited command. The army rank thus conferred on medical officers facilitates the performance of the duties of command and discipline now imposed. Where the military command of soldiers is involved, the possession of a military title is convenient for common parlance, and enhances the officer's authority.

The organization of the Army Medical Staff comprises a director-general, and a fixed establishment of administrative officers, made up of ten surgeon-major-generals, twenty-four surgeon-colonels, and fifty brigade-surgeon-lieutenant-colonels, who, though executive officers, are available for administrative duties. There is no fixed establishment for each of the remaining ranks of executive officers, but the total number averages 763; there are also thirty-five quartermasters. The Medical Staff Corps consists of thirty-six warrant officers, 336 staff sergeants and sergeants, and 2030 rank and file. The Director-General, under the commander-in-chief, is the responsible head of the department, and charged with the administration and command of the army medical staff and medical staff corps; also of the militia medical staff and corps, the militia reserve of the medical staff corps, and the medical establishment of the Army including the army medical reserve of officers, besides the volunteer staff and corps, and the nursing service. The surgeon-major-generals and surgeon-colonels act as principal medical officers in charge of the medical administration of districts and commands; in certain smaller districts, brigade-surgeon-lieutenant-colonels perform these duties as senior medical officers. The remaining body of officers perform the

executive duties at all stations at home and abroad. The warrant and non-commissioned officers and men of the medical staff corps are under the command of the officers of the army medical staff.

The full conditions of service in the Army Medical Staff are laid down in the royal warrant for pay and promotion, and, briefly stated, are as follows: An officer, after three years' full-pay service as surgeon-lieutenant, if favorably reported on, is promoted to the rank of surgeon-captain, and after twelve years' full-pay service, including at least three years abroad, and having passed a satisfactory examination, is again promoted, acquiring the rank of surgeon-major; in turn, a surgeon-major is promoted, if recommended, to surgeon-lieutenant-colonel, after twelve years' full-pay service. All promotions to the fixed establishments of the higher ranks are governed by seniority, tempered by selection with due regard to ability and merit. The regulations as to the full pay, half-pay and retired pay of the different ranks are laid down in the royal warrant for pay, etc.

A recruit, desiring to enlist in the Medical Staff Corps, must produce a certificate of good character from his previous employer and be able to read and write; must be from eighteen to twenty-eight years of age, five feet three inches to five feet five inches in height, of minimum chest measurement and weight of thirty-three inches and 115 pounds respectively. Enlistment is for seven years army and five years reserve service, or three years army and nine years reserve service, at the option of the recruit; which periods of service will be respectively converted into eight years army and four years reserve service, or four years army and eight years reserve service, if the period of army service expires while the man is serving abroad. The regulations as to the regimental pay, the additional corps pay which the men ordinarily receive, and the extra-duty pay given them under special circumstances, are laid down in the royal warrant for pay, etc. The transport of all hospital establishments is carried out by the Army Service Corps.

The arms of the Medical Staff Corps are a short sword bayonet. The equipment is as for infantry, but with the valise pattern of 1882. All recruits go through a special

course of musketry. On field service, the Medical Staff Corps is supplied with arms and ammunition in the usual manner. It should be added here, that if England were fighting a nation under the terms of the Geneva Convention, the Medical Staff Corps would be strictly neutral, and would not be in possession of arms or ammunition.

The inspection of the Medical Staff Corps is carried out half-yearly by the principal medical officer of the district, who also receives reports of the officers of the army medical staff serving under him, and satisfies himself that they are efficient in all the details of their duty; he also inspects the hospital, examines into its interior economy, and renders confidential reports on the officers serving in his district, annually, through the general officer commanding, after inquiring into their military and professional efficiency.

It is generally held, so far as medical arrangements are concerned, that on mobilization there should be preparation made for reception of 20,000 wounded in London; also that medical officers and men for the various units, field hospitals, and bearer companies, for three mobile army corps, should be detailed and ready for immediate mobilization. This has been done, and tables have been issued showing in detail how the arrangements are to be carried out. In addition, each general officer commanding a district is directed to prepare a scheme of defense for such district, with the forces and equipment, civil and military, at his disposal. All arrangements are made with a lighter scale of equipment than for foreign service, it being assumed that the campaign will be very brief; no tents or heavy field equipment are arranged for. A pamphlet will shortly be issued with army orders giving "Instructions for the Organization and Distribution of the Army Medical Staff, Medical Staff Corps, and Militia and Volunteer Medical Staff Corps, on Mobilization for Home Defense."

As auxiliaries and reserves, there is a body of 1200 non-commissioned officers and men of the militia reserve, who are annually trained in the duties of the Medical Staff Corps, and by royal warrant, dated June 6th, 1891, the formation of a Militia Medical Staff Corps has been approved. This corps, when

raised,* will comprise the ranks of surgeon-major, surgeon-captain, surgeon-lieutenant, sergeant, corporal, and private, who are to receive the pay and allowance laid down in Regulations for Militia, 1893. Another large and important auxiliary to the Medical Staff Corps is furnished by the Volunteer Service. Ever since the commencement of the volunteer movement, medical officers have been attached to each volunteer corps or battalion; but by Army Circular, Clause 59, of 1886, a royal warrant was published, which provided that with a view to the further development of the medical organization of the volunteer force, a corps, to be designated the Volunteer Medical Staff Corps, should be formed, comprising the following ranks: Surgeon-lieutenant-colonel, surgeon-major, surgeon-captain, and surgeon-lieutenant, quartermaster, first- and second-class staff sergeants, sergeant-bugler, sergeant, corporal, bugler, private. Like other volunteer corps, the Volunteer Medical Staff Corps has a permanent staff from the regular army, consisting of an adjutant—who is a surgeon-captain of the army medical staff,—an acting sergeant-major, and sergeant-instructors who are non-commissioned officers of the Medical Staff Corps. Originally, the Volunteer Medical Staff Corps consisted of only one division company in London; but there are now companies in Edinburgh, Woolwich, Manchester, Maidstone, Leeds, Aberdeen, Norwich, and Glasgow. Since the organization of volunteer infantry brigades in 1888, a brigade-surgeon has been appointed on the staff of each brigadier-general, who is responsible to the Director-General through the principal medical officer of the district, and has under his orders the regimental surgeons of the several corps forming the brigade; under this system also brigade bearer companies have been formed, composed of men taken from the fighting ranks, no provision having as yet been made for volunteers to qualify as efficient otherwise than through the usual training and drill with their corps, and they are trained in ambulance work as secondary duty.

By royal warrant dated February 18th, 1888, an Army Medical Reserve of officers

*One company is already formed, the Haunts Company Militia Medical Staff Corps.

was established. In the Secretary of State's instructions on the warrant, it was laid down that medical officers of the militia, yeomanry, and volunteers, on electing to join this reserve, should undertake to perform any duties at home at the rates of remuneration laid down for civilian medical practitioners in the royal warrant for pay, and that officers of the Army Medical Reserve would have a prior claim to employment in the district in which they reside, over other medical officers of the auxiliary forces or civilian practitioners. The medical officers on the retired list, who are liable to be recalled to service, are shown in the quarterly official army list; as is also the army medical reserve of officers of the ranks, from surgeon-lieutenant to surgeon-lieutenant-colonel. Promotion is given regularly according to length of service on fulfillment of the prescribed rules.

Candidates for services in the Army Medical Staff on the west coast of Africa enter under the same qualifications as for the Army Medical Department generally, except that they may be admitted at a later age. They are required to complete three years' service on the coast, after which they will be eligible for general service. For each year's service on the coast, an officer is entitled to a year's leave at home on full pay, and each year or portion of the same served on the coast reckons double towards volunteer retirement on retired pay.

The Nursing Service is divided into three grades: Lady superintendents, senior nursing sisters (or acting lady superintendents), and nursing sisters. No candidate for the appointment of nursing sister may be under twenty-five or over thirty-five years of age, and each applicant must produce an extract from the register of her birth, or, in default, a declaration made before a magistrate by one of her parents or guardians, giving exact age; must also produce a recommendation from some person of social position, not a member of her own family, as to standing in society, and some testimony as to possession of tact, temper, and ability qualifying for appointment; must sign a declaration showing whether she is single, married, a widow, or member of any sisterhood or society; must produce a certificate of health and evidences of having had at least three years' prelimi-

nary training and service combined, in an approved civil hospital, where adult male patients receive medical and surgical treatment, and in which a staff of nursing sisters, under a matron, is maintained; finally, must produce certificates of efficiency in medical and surgical nursing from the medical officers under whom she has served. Nursing sisters are retired after the age of sixty years, on a pension; if disabled in the service before that age, the amount of pension or gratuity is regulated by the length of service. They are rationed and allowed a uniform free of all expense, and also certain allowances for washing and attendance. They are placed under a strict discipline, their duties being very fully defined, and the lady superintendent—or the acting lady superintendent—is responsible to the principal medical officer for their work. Nursing sisters serve abroad, and are detailed for foreign service by the Director-General, as far as the exigencies of the service will permit, according to a roster.

The existence in peace of a body of military medical officers, and of a corps of trained orderlies and sick-attendants, is essentially necessary; more particularly so to the British service, owing to the varied conditions under which that army is called upon to serve. The duties of the medical staff comprise: The general treatment of the sick, officers, men, women, and children; careful observation and regulation of the sanitary surroundings of the soldiers, bearing in mind the various conditions of service in climates of widely varying character; prevention as well as the treatment of disease; examination and passing of recruits for the Army; invaliding of men who are physically unfit for further service; management and control of the various classes of hospitals, general hospitals, station hospitals, hospitals on board ships, lunatic hospitals, hospitals for women and children; supervision and control of all officers and men, both patients and those doing duty in these various hospitals; the command, discipline, and interior economy of the Medical Staff Corps.

In these days of progress and improved education, knowledge of sanitary science and of the ordinary rules for the preservation of health is almost universal among all classes; the duty, consequently, of a medical officer

in advising his general, or other commanding officer, upon sanitary questions, is much lightened and facilitated. Old prejudices are disappearing; there is less friction, and both commanding and medical officers understand each other on these points, and work together for the common good of the soldiers. It is the practice to place medical officers in immediate charge of the troops in certain sections of a garrison, and by this means—if not changed too frequently—they become acquainted with the localities and with the several commanding officers, between whom and these medical officers it is very desirable there should be frequent periodical communication, whereby the interests of the service may be best compassed.

Junior medical officers are not placed in actual charge of regiments on home service, though in India this is sometimes done. The adoption of the station hospital system has rendered the old system in this respect unnecessary, though it is undoubtedly a fact that it would be most desirable for young officers to be attached regimentally for a fixed period, and there gain an insight into regimental ways and the inner working of the soldier's daily life, as a good preparation for the responsible duties referred to in the previous paragraph.

General hospitals are organized for the reception of invalids from India and abroad, the sick of corps at stations, and all entitled or especially authorized to be admitted into military hospitals. There is also separate and special accommodation for sick and wounded officers. The general hospitals in England are: The Royal Victoria Hospital at Netley, and the Herbert Hospital at Woolwich.

Station hospitals are established for the reception and treatment of sick from all corps in garrison, auxiliary troops when embodied, and all other persons who may be admitted under special sanction; each is commanded by a medical officer appointed by the Director-General, usually a surgeon-lieutenant-colonel or a surgeon-major, subject to the general officer or other officer in command of the troops at the station. An establishment of officers of the medical staff, and warrant officers, non-commissioned officers and men of the medical staff corps, is

provided for each hospital, according to its requirements.

Station hospitals are equipped according to schedules laid down. Under certain conditions they are non-dieted,* as in some barracks where the station hospital is some distance off; they are called "auxiliary" or "convalescent" hospitals, and contain a few beds for cases of accident, or the like, and an inspection room where the medical officers in local charge can examine soldiers, or others who report themselves sick.

Hospitals on board ships are organized and conducted similarly to non-dieted station hospitals, the equipment in each case being placed by the Admiralty.

Lunatic hospitals are only established in connection with general hospitals, and are administered under similar regulations; they are subject to the authority of the Commissioners of Lunacy.

Hospitals for soldiers' wives and children are organized and administered as station hospitals. These are much assisted by the kindly interest taken in them by officers' wives and other philanthropic persons, and are not wholly maintained by government, special funds, for their support being raised by voluntary contributions, and valuable assistance given, both in money and kind.

In time of war, the duties of medical officers and the Medical Staff Corps are, as a rule, of an exceptionally arduous and responsible nature. A large proportion of the active military service in which British troops are engaged, is performed in tropical and unhealthy countries, against savages to whom the Geneva Convention and the courtesies of modern warfare are unknown; consequently, sick and wounded cannot in case of emergency or retreat be left to the care of the enemy, but must be carefully guarded and treated and removed to a place of safety, since abandonment would result only in torture and death. The arrangements for medical assistance with an army in the field are: A medical officer with each unit, regiment, body of artillery, corps, or staff, who has at his disposal the trained regimental stretcher-bearers, two per company or troop.

* In dieted hospitals the patients are fed according to a special scale of diet.

To each brigade a bearer company is attached, and there is one field hospital. To each division an additional field hospital is allowed. For an army corps the medical establishment consists of ten field hospitals and six bearer companies, exclusive of the regimental aid. In addition to this, a certain number of officers of the medical staff are utilized for staff purposes, and are shown in the lists of field establishments. With a cavalry division, which is considered separately from the army corps, there are two bearer companies and three field hospitals.

The entire medical service is under the command of a Surgeon-Major-General, who is included with the staff of the General commanding the line of communications, and subject to the authority of the General commanding-in-chief. When a soldier falls wounded in the fighting line, he is reached and attended to as quickly as possible by the medical officers attached to the regiment or corps, carried or assisted to the collecting-station, and handed over to the bearer company. The collecting-station is the advanced post of pack-animal ambulance transport and the various forms of wheeled carriage, and is usually in charge of a non-commissioned officer who has a small supply of restoratives for the more seriously injured. To this point all the wounded are conveyed, and are placed on the transport vehicles, to be passed on to the dressing-station, about 1500 to 2000 yards from the fighting line. The dressing-station is specially adapted for relieving the most seriously wounded, restoring those who are exhausted, and for performing necessary operations; it is provided with a tent and medical and surgical panniers. The staff consists of two or three officers of the medical staff, according to the regiments, and ten non-commissioned officers and men, including a cook. The transport and attendance on the wounded from the fighting line, through these two posts of succor, is performed by the bearer company. These two stages comprise the "First Line of Assistance." From the dressing-station the wounded are passed, by road or railway, to the field hospital, which is placed in some suitable position beyond the range of fire, or under cover from it. There is here provision for men to remain two

or three days if necessary, and they may be either discharged to duty again or passed to the base hospital along the line of communication. The duration of the transit depends upon the distance of the fighting line from the base, and the nature of the transport used; this forms the "Second Line of Assistance." When the distance is great, hospitals on the line of communication are formed, and the journey of the sick and wounded is made by stages to the base. The base hospital is formed usually at or near the port of embarkation for England, and consists of a large staff with every possible appliance for care and treatment of the wounded; this forms the "Third Line of Assistance." Invaliding boards are held regularly at the base hospital, and the sick and wounded are either returned to the front or sent home; and with the object of meeting the requirements, hospital ships are equipped, so that the soldier lacks nothing to give him the best possible chance of recovering from the effects of climate or injuries. The last stage is disembarkation in England, and transfer to the Royal Victoria Hospital at Netley, or some other hospital.

One most important fact must be noted, and that is the much greater distance now, in contrast to former days, between the fighting line and the dressing-station. The carriage of a man of ten to twelve stone, these distances, over rough and uneven ground, requires bearers of good physique. The introduction of smokeless powder, and the increased velocity and range of rifle fire, will doubtless greatly modify the arrangements for the removal of wounded men from the field. Various theories have been propounded; but so much depends on the tactics and methods of attack that may be found practicable under the new conditions, that only practical experience is likely to show what will be the best system for ambulance work.

RESUMÉ OF THE SANITARY ORGANIZATION OF THE BRITISH ARMY.*

The officers of the Army Medical Staff comprise one Director-General (who is a

* Data from Military Information Division, War Department A.-G. O., U. S. Army.

surgeon-major-general with a special rate of pay), ten surgeon-major-generals, twenty-four surgeon-colonels, and fifty brigade-surgeon-lieutenant-colonels. There is no fixed establishment for the remaining ranks of medical officers, whose titles are surgeon-major, surgeon-captain, and surgeon-lieutenant. In 1893 these grades numbered 803 officers, counting three with the Army headquarters staff. There are also generally a number of surgeon-lieutenants* on probation (twelve in 1893), two apothecaries who rank with captains, and thirty-five quartermasters who are store keepers and accountants and have the rank of captain or lieutenant.

The Director-General is a member of the headquarters staff of the Army, and is, under the commander-in-chief, the responsible head of the department; he is charged with the administration and command of the army medical staff and medical staff corps; also of the militia medical staff and corps, the militia reserve of the medical staff corps, and the medical establishments of the Army, including the Army medical reserve of officers, besides the volunteer medical staff and corps, and the nursing service.

The surgeon-major-generals and surgeon-colonels act as principal medical officers in charge of the medical administration of districts and commands. There is at present one surgeon-major-general in the office of the Director-General. Of the other nine, six are serving at home and three in India.

In certain small districts brigade-surgeon-lieutenant-colonels have charge as senior medical officers.

The remaining medical officers perform the executive duties at all stations at home or abroad.

Hospitals.—The system of hospitals includes: General hospitals, station hospitals, hospitals on board ship, lunatic hospitals, and hospitals for women and children. Of these the only ones that require special notice in this connection are the station or garrison hospitals and the hospitals for women and children.

Station hospitals are commanded by medical officers appointed by the Director-Gen-

eral, usually a surgeon-lieutenant-colonel or surgeon-major, subject to the general officer or other officer in command of the troops at the station. An establishment of officers of the medical staff, and warrant officers, non-commissioned officers and men of the medical staff corps, is provided for each hospital according to its requirements.

Hospitals for soldiers' wives and children are administered as station hospitals. They are only partially supported by the government, deriving part of their funds, etc., from philanthropic societies and funds raised by voluntary contributions.

Hospitals for wives and children of soldiers are provided with a staff of female attendants. Orderlies or messengers for these hospitals are detailed from the troops on duty at the station.

The Medical Staff Corps.—The establishment of this corps provided for in the last army estimates was thirty-eight warrant officers, 342 staff-sergeants and sergeants, 287 corporals, nine buglers, and 1788 privates; total, 2464. This force is organized in companies, of which one is posted to each district, and with its corresponding company of volunteer medical staff corps attached. The Medical Staff Corps goes on foreign service, though not to India as yet. The last "Annual Return of the British Army" gives twenty-one of these companies. The warrant and non-commissioned officers and men of the Medical Staff Corps are under the command of the officers of the army medical staff.

Though the Medical Staff Corps furnishes hospital attendants for all duties, yet medical officers may detail convalescents for such duties as they are capable of performing. Soldiers from other units than the Medical Staff Corps are often detailed in lieu of or to supplement the establishment of hospital attendants. These are known as regimental hospital orderlies, and get extra pay.

Stretcher-Bearers.—In every military unit, at least four men per squadron, or two men per company, will be trained as the stretcher-bearers of the corps. When an action is about to begin, the trained regimental bearers, with the field stretchers, will be placed at the disposal of the medical officer attached to the unit.

* Under instruction at the Army Medical School, Netley Hospital.

Nursing Service.—The nursing service is divided into three grades: Lady superintendents; senior nursing sisters (or acting lady superintendents); nursing sisters. Nursing sisters are retired on pension after the age of sixty years. If disabled in service before that age, the amount of pension or gratuity is regulated by their length of service. They are rationed and allowed a uniform free of all expense, and have certain allowances. They are under strict discipline, and the lady superintendent is responsible to the principal medical officer that their work is properly done, etc. Nursing sisters serve abroad, being detailed for foreign service by the Director-General.

The lines of medical assistance in the field in active service, traced from front to rear of an army, are:

Medical Officers attached to units (with their company bearers):

Bearer Companies:

Field Hospitals:

Hospitals on the lines of communication:

General Hospitals at the base.

The British Army, or portions of it, may be mobilized either for service abroad or for home defense. The two states of mobilization vary considerably, especially in the sanitary and medical services.

For service abroad each army corps has six bearer companies and ten field hospitals; for home defense, six bearer companies and three field hospitals. Each army corps for service abroad has one principal medical officer, two surgeon-major assistants, and one orderly medical officer. Each infantry division and each cavalry division has its own principal medical officer and one surgeon-major assistant. Each infantry battalion of eight companies, as well as each cavalry regiment, has one medical officer; the corps artillery, two; each field or horse artillery division, one.

Each of the six infantry brigades of a corps has one bearer company and one field hospital.

Each of the three infantry divisions of a corps, and also each corps as such, has one field hospital.

The organization of the medical units (bearer companies and field hospitals) for service abroad, is as follows:

	BEARER Co.	FIELD HOSP.
Medical officers.....	3	4
Quartermaster	1
Warrant officers and sergeants.....	7	9
Buglers	1	..
Corporals	6	4
Privates.....	15	14
Privates as bearers	32	..
Privates as ward orderlies.....	..	14
	—	—
Total, all ranks.....	64	46

Transport attached from Army Service Corps company:

	BEARER Co.	FIELD HOSP.
Officers.....	1	..
Warrant officers and sergeants.....	1	2
Artificers.....	2	1
Trumpeters	1	..
Corporals	2	2
Privates.....	5	3
Drivers	29	18
	—	—
Total, all ranks.....	41	26

With the exception of those at Aldershot and Netley, bearer companies and field hospitals are not permanent establishments, being only formed on mobilization, etc. When organized they are under command of a medical officer.

Field hospitals are organized and conducted as laid down in the Regulations for Medical Services. They have a light equipment to enable them to be moved with the troops.

Hospitals on the lines of communication have a heavier equipment than field hospitals. They are established in such places and in such numbers on the lines of communication as may be necessary.

General hospitals at the base of operations will be fully equipped; a military depot will be attached to such hospitals.

Mobilization for Home Defense.—The number of staff and regimental medical officers for duty in the first line is practically the same for home as abroad. The organization of the medical units (bearer companies and field hospitals) is practically the same also, except that the *transport* attached is considerably diminished. The *number* of bearer companies and the *distribution* thereof are the same as given for service abroad, but the field hospitals are reduced to three, and only one is allowed to each infantry division. Cavalry divisions are not organized for home defense,

and for each cavalry brigade one bearer company and a half-share in a field hospital are allowed.

VIII. THE ARMY OF THE UNITED STATES.

The war of the American Revolution, fought as it was for the most part by raw levies from the people—destitute of every material thing, even arms and ammunition—added little to the advancement of military sanitation. The Medical Department was, as a rule, poorly officered and badly equipped, and the sick were crowded into wretched huts or makeshift hospitals. Such organization as existed was borrowed from the British; there was no system of supplies or transport, and the ill and injured were very little better cared for than those of the Middle Ages who were “abandoned to crawl mayhap to the shelter of a monastery, or to die by the way-side.”

The war of 1812 again found this country without sanitary organization. The lessons taught by the wars of the Directory and Empire, in which Percy and Larrey gained such distinction, had apparently made little or no impression upon the American profession, for the Sanitary Department was practically where the War of the Revolution had left it.

From a history of the Medical Department of the United States Army we learn that during this war general hospitals were established at various places on our northern frontier, as at Watertown, Albany, Malone, Buffalo, etc. I quote a single experience:

In September, 1811, the sick in hospital at Plattsburg, numbering 720, were, in view of the approaching fight, transferred to Crab Island. No accommodation had been provided for them on the Island, and they remained for three days exposed to the wet and cold, when Doctor Powell determined to transport them to Burlington, which he did in open bateaux across the lake. This crowded the hospital at Burlington to such an extent that the ill-effects of crowd-poisoning were soon perceived in the increased number of deaths and in the slow convalescence of the many. Typhus, dysentery and diarrhœa became prevalent.

As to what systematic provision was made for the transport of the wounded, and the various other details of sanitary organization

so essential to an army, history is silent, and we can but infer that what was done in this direction was the outcome of each emergency as it arose.

During the war with Mexico we started out with a regimental hospital organization similar to that of the British Army during the Peninsula campaign of almost fifty years before. There were no men regularly trained to care for the sick, or to assist the medical officers in their care, the only plan being for a certain proportion of men from the ranks to be detailed for this service as the occasion demanded. The advantages of the French system had not yet impressed themselves upon our medico-military organization. To be sure, we had also base or general hospitals to receive the overflow, and our sick were generally well cared for—the number at no time being excessive; but the good work accomplished was not because of our system, but in spite of it.

After the conclusion of this war, while there was an appreciable advance in the quality of the *personnel* of the Medical Department, there is no evidence that any particular effort was made to perfect the sanitary organization of the Army; it remained as it had been from the beginning, without any such.

At the outbreak of the War of Secession the regular army numbered* 1117 commissioned officers and 11,907 enlisted men. The Medical Department was composed of one Surgeon-General with the rank of colonel, thirty surgeons with the rank of major, and eighty-four assistant-surgeons holding for the first five years the rank of first lieutenant, and subsequent to that period (until promotion to surgeon) the rank of captain.

The officers of the Medical Department formed a portion of the general staff of the Army; were not permanently attached to any regiment or command, but were subject to duty wherever their services were needed. Experience had demonstrated this system to be the best for the necessities of an army widely scattered over an immense area of territory, serving in commands of less than regimental strength, while it possessed the

*Compiled from the Medical and Surgical History of the War of the Rebellion, and other sources.

advantage of increasing the efficiency and value of the medical force from a professional point of view.

At the beginning of hostilities in 1861, large forces of State troops, or militia, responded to the several proclamations of the President calling for aid in suppressing the rebellion. Each regiment was provided with a surgeon and an assistant-surgeon, commissioned by the State in which the troops had been enlisted. These officers were borne on the muster-rolls and permanently attached to the regimental organization, being seldom detached except for urgent reasons.

During the early military operations, the administrative duties pertaining to the Medical Department were performed by officers of the regular medical staff, detailed for the purpose, or by volunteer surgeons appointed as medical directors of divisions, as allowed by the President's proclamation of May 3d, 1861.

On the 22d of July, 1861, Congress passed an Act authorizing the President to raise a force of volunteers, not exceeding 500,000, and prescribing the organization of this levy into divisions of three or more brigades, and that "each brigade shall be composed of five or more regiments, and shall have one brigadier-general, two aids-de-camp, one assistant adjutant-general with the rank of captain, one surgeon, one assistant-quartermaster, and one commissary of subsistence." The surgeons authorized by this Act were known as brigade surgeons, and were borne as such on the official army registers of September, 1861, and January, 1862; they held the rank of major.

The condition of affairs that obtained about the time of the enactment of this law was graphically described in a report of Surgeon Charles H. Tripler, U. S. A., the first medical director of the Army of the Potomac, and one of the most distinguished officers of the Medical Department. He wrote:

I joined the Army of the Potomac August 12th, 1861, and was immediately charged with the organization of the Medical Department. . . . The Army was encamped on the south side of the Potomac, covering an extent of some miles from Arlington Heights to Alexandria, several miles down the river, and in and about Washington. There were some five or six hotels, seminaries, and infirmaries in Washington and Georgetown, occupied as

general hospitals under capable officers, but with no system with reference to the admission and discharge of patients. Every regimental surgeon sent what patients he pleased to the general hospitals, without knowing whether there was any room for them or not, and men were discharged from hospitals with no means provided to insure their return to their regiments. It was not an unusual circumstance for sick men to pass the night in the ambulance, wandering about the streets from hospital to hospital seeking admission. I could find no information anywhere as to what regiments were present, or whether they had medical officers or not. . . . The regulations of the Army recognized only regimental and general hospitals. The regimental hospitals in the field were established in tents or in such buildings as might chance to be within the limits or immediate vicinity of each camp. The general hospitals available for the Army of the Potomac were the few old hotels or similar buildings occupied as hospitals in Washington, Alexandria, and Annapolis. There was no authority for any hospital establishment in the vicinity of the division or brigade that might relieve the regimental hospital tents. . . . The buildings already provided and occupied were seen at once to be totally inadequate. The entire hospital establishment in the above-named cities contained only 2700 beds.

Commenting upon this, Colonel Irwin (Medical Department U. S. A.) writes:

Such were the first meagre attempts to provide hospital accommodations for the invalids of an army numbering 140,000 to 180,000 men preparing for active service in the field! In further illustration of the disappointment caused in the public mind, and the confusion resulting from the absence of an adequate system of hospital organization to meet the demands of the vast numbers of military invalids suddenly thrown upon the hands of the medical service, the words of Surgeon Tripler will convey some faint idea of the annoyance and unlooked-for interference that handicapped the Medical Department in the discharge of its onerous duties; he wrote: "I may mention here that a great deal of presumptuous intermeddling with the Medical Department of the Army occurred from time to time. Sensational preachers, village doctors, and strong-minded women, suddenly smitten with a more intricate knowledge and thorough perception of the duties and the administration of the medical department of an army, than I had been able to acquire in more than thirty years' experience and study, obtruded their crude suggestions,

and marring where they could not make, and paralyzing when they attempted to quicken, succeeded by their uninformed zeal, innocently enough perhaps, but not the less unfortunately on that account, in defeating measures I had much at heart, had carefully contemplated, and intended to carry into effect at the proper time."

The duties, prerogatives and responsibilities of brigade surgeons being somewhat vaguely defined, the following bill was passed by Congress on July 2d, 1862:

From and after the passage of this Act, brigade surgeons shall be known and designated as Surgeons of Volunteers, and shall be attached to the general medical staff under the direction of the Surgeon-General; and hereafter such appointments for the medical service of the Army shall be appointed surgeons of volunteers.

The brigade surgeons, or Surgeons of Volunteers as they were henceforth called, were assimilated to those of the regular staff, holding equal rank with the latter under commissions conferred by the President and confirmed by the Senate. They became eligible to all the duties and prerogatives pertaining to the medical officers of the Army, whether in the field as directors of armies, corps, or departments, or in charge of hospitals, etc. From time to time, by Acts of Congress, additions were made to the regular and volunteer corps, and such changes effected as were necessarily demanded. The Act of April 16th, 1862, was one of the most important of these, wherein the rank of brigadier-general was conferred upon the Surgeon-General. Provisions were also made in this Act for an assistant surgeon-general and a medical inspector-general—both with the rank, pay, and emoluments of colonel of cavalry,—and for eight medical inspectors, with the rank, pay, and emoluments of lieutenant-colonel of cavalry; also for medical purveyors and medical cadets.

The text of the law is here inserted:

An Act to reorganize and increase the efficiency of the Medical Department of the Army.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled: That there shall be added to the present medical corps of the Army, ten surgeons and ten assistant-surgeons, to be promoted and appointed under existing laws; twenty medical cadets, and as many hospital stewards as the Surgeon-General may consider necessary for the public service, and that their pay and that of all hospital stewards in the volunteer as well as the regular

service shall be thirty dollars per month, to be computed from the passage of this Act. And all medical cadets in the service shall, in addition to their pay, receive one ration per day, either in kind or commutation.

Sec. 2.—And be it further enacted: That the surgeon-general to be appointed under this Act shall have the rank, pay and emoluments of a brigadier-general.

There shall be one assistant surgeon-general, and one medical inspector-general of hospitals, each with the rank, pay and emoluments of a colonel of cavalry; and a medical inspector-general shall have, under the direction of the Surgeon-General, the supervision of all that relates to the sanitary condition of the Army, whether in transports, quarters, or camps, and of the hygiene, police, and discipline and efficiency of field and general hospitals, under such regulations as may hereafter be established.

Sec. 3.—And be it further enacted: That there shall be eight medical inspectors, with the rank, pay and emoluments each of a lieutenant-colonel of cavalry, and who shall be charged with the duty of inspecting the sanitary condition of transports, quarters and camps of field and general hospitals, and who shall report to the Medical Inspector-General, under such regulations as may hereafter be established, all circumstances relating to the sanitary condition and wants of troops and of hospitals, and to the skill, efficiency, and good conduct of the officers and attendants connected with the Medical Department.

Sec. 4.—And be it further enacted: That the Surgeon-General, the Assistant Surgeon-General, Medical Inspector-General, and medical inspectors, shall, immediately after the passage of this Act, be appointed by the President, by and with the advice and consent of the Senate, by selection from the medical corps of the Army, or from the surgeons in the volunteer service, without regard to their rank when so selected, but with sole regard to qualifications.

Sec. 5.—And be it further enacted: That medical purveyors shall be charged, under the direction of the Surgeon-General, with the selection and purchase of all medical supplies, including new standard preparations, and of all books, instruments, hospital stores, furniture, and other articles required for the sick and wounded of the Army. In all cases of emergency they may provide such additional accommodations for the sick and wounded of the Army, and may transport such medical supplies, as circumstances may render necessary, under such regulations as may hereafter be established, and shall make prompt and immediate issues upon all special requisitions made upon them under such circumstances by medical officers; and the special requisitions shall consist simply of a list of the articles required and the quantities required, dated, and signed by the medical officers requiring them.

Sec. 6.—And be it further enacted: That whenever the Inspector-General or any of the medical inspectors shall report an officer of the medical corps as disqualified by age or otherwise for promotion to a higher grade, or unfitted for the performance of his professional duties, he shall be reported by the Surgeon-General for examination to a medical board as provided by the seventeenth section of the Act approved August 3d, 1861.

Sec. 7.—And be it further enacted: That the provisions of this Act shall continue and be in force during the existence of the present rebellion, and no longer: Provided, however, that, when this Act shall expire, all officers who shall have been pro-

moted from the medical staff of the Army, under this Act, shall retain their respective ranks in the Army, with such promotion as they would have been entitled to.

Approved April 16th, 1862.

Besides the medical officers of the regular and volunteer staff, and the medical officers of regiments, there was a class designated as Acting Assistant Surgeons, who were private physicians, uncommissioned, serving under contract to do duty with the forces in the field or in general hospitals. This class was very large, and embraced in its number some of the most eminent surgeons and physicians of the country. The medical cadets were generally young men, students of medicine, who were assigned to duty in general hospitals as dressers and assistants.

The Medical Department was still further increased by a number of hospital stewards, who were enlisted as needed, and who performed the duties of druggists, clerks, and storekeepers.

During the years of the war the organization of the regular staff had been increased so as to number one Surgeon-General, one Assistant Surgeon-General, one Medical Inspector-General, sixteen medical inspectors, and 170 surgeons and assistant-surgeons; there had been appointed 547 surgeons and assistant-surgeons of volunteers; there were mustered into service between April, 1861, and the close of the war, 2109 regimental surgeons and 3882 regimental assistant-surgeons. During the same period there were employed eighty-five acting staff surgeons and 5532 acting assistant-surgeons.

To the fidelity and efficiency of this vast body of professional men the Surgeon-General, in his annual report of 1865, bears the following well deserved tribute:

I desire to bear testimony to the ability, courage, and zeal manifested throughout the war by the officers of the Medical Department, under all circumstances and upon all occasions. With hardly an exception, they have been actuated by the highest motives of national and professional pride, and the number who have been killed or wounded bears honorable testimony to their devotion and duty on the field of battle.

The following record of casualties of the regular and volunteer staff during the war shows well for the honor of those who are

erroneously supposed to escape the dangers and chances of war:

Thirty-two were killed in battle, or by guerillas or partisans, and nine by accidents; eighty-three were wounded in action, of whom ten died; four died in rebel prisons, seven of yellow fever, three of cholera, and 271 of other diseases, most of which were incidental to camp life or the result of exposure in the field.

Of the amount of labor performed by the medical staff during the war, some idea may be obtained when it is stated that 5,825,480 cases of wounds and diseases occurred among the white troops, and 629,354 cases among the colored troops.

The cost of maintaining the Medical Department formed no small portion of the total expenses of the war, and it is a matter of just pride that it can be said that the medical disbursing officers performed their duties faithfully and honestly, and that the immense quantities of medical supplies distributed all over the country were almost without exception properly accounted for. The expenditures on behalf of the Medical Department to the close of each fiscal year, on the 30th of June, from 1861 to 1866, were as follows:

1861.....	\$ 194,126 77
1862.....	2,371,113 19
1863.....	11,594,650 35
1864.....	11,025,791 33
1865.....	19,328,499 23
1866.....	2,837,801 37

Making a total of \$47,351,982.24, expended during the war (exclusive of salaries of commissioned officers) for the benefit of the sick and wounded soldiers of the nation.

After the organization of the forces raised for the suppression of the rebellion was perfected, the medical service in the field was based upon an independent hospital and ambulance establishment for each division of three brigades. The *personnel* of the division hospital consisted of a surgeon in charge, with an assistant surgeon as executive officer, and a second assistant-surgeon as recorder; an operating staff of three surgeons aided by three assistant-surgeons, and the requisite number of nurses and attendants. The division ambulance train was commanded by a first lieutenant of the line, assisted by a

second lieutenant for each brigade. The enlisted men detailed for ambulance duty were: A sergeant for each regiment, three privates for each ambulance, and one private for each wagon. The ambulance train consisted of from one to three ambulances for each regiment, squadron, or battery, a medicine wagon for each brigade, and two or more supply wagons. The hospital and ambulance trains were under the control of the surgeon-in-chief of the division. The division hospitals were usually located just out of range of artillery fire. Sometimes three or more division hospitals were consolidated under the orders of a corps medical director, who was assisted by his medical inspector, quartermaster, commissary, and chief ambulance officer.

The medical officers not employed at field hospitals accompanied their regiments and established temporary depots as near as practicable to the line of battle.

As soon as possible after every engagement, the wounded were transferred from the division or corps hospitals to the base or general hospitals, which at one time numbered 205; these were under the charge and command of the regular or volunteer staff, assisted by acting assistant-surgeons, medical cadets, and officers of the second battalion of the veteran reserve corps.

Ambulance Corps.—The necessity for a drilled and instructed corps for the transportation of wounded from the field is apparent to every one who will consider the subject. The importance of having the wounded rapidly removed from the scene of strife must be conceded, not only on the score of humanity, but also as a military necessity. Without a detachment whose duty it is to attend to this service, the natural impulse of sympathy will draw men from the ranks to assist their fallen comrades, while the pretext is a temptation to the faint-hearted to shirk the perils of their position. Moreover, the courage of troops under fire would be sustained if they were assured that reliable men would be ready to bear them rapidly from the vicissitudes of conflict and to tender them early assistance. No organized ambulance corps existed in the Army at the beginning of the war, but the necessity of such an organization, under the control of the Medical Department,

was early recognized by the medical officers, and already in April, 1862, Medical-Director Tripler, of the Army of the Potomac, called attention to the absolute necessity of having an experienced quartermaster and assistant commissary of subsistence attached to the command of the chief medical officer of an army in the field. He wrote:

I find it impossible to secure either transportation or subsistence for the men thrown upon my hands, without tedious delays and much unnecessary suffering. Time, which is so valuable to me now, is taken up and wasted in endeavors, too often unsuccessful, to get together ambulances and wagons, to have these trains properly and economically conducted, to have boats prepared and in position, to procure buildings for hospitals, to get subsistence for the sick and wounded, and, in short, doing the duty assigned to quartermasters and subsistence officers. It seems to me that to bring this evil to the notice of the Secretary of War will be sufficient to cause its instant remedy; at all events, I protest beforehand against the Medical Department being held responsible for evils they have no possible means of obviating. My experience in this campaign has taught me that without an executive officer of these two important departments under my command, more time is lost in negotiating through second and third parties, with an even chance of not getting at all what is wanted, and a certainty of not getting it in time, than would be required in procuring what is necessary and having it in the right place if these officers were placed at my disposal.

On August 21st, 1862, Surgeon-General W. A. Hammond, U. S. Army, in a letter to the Secretary of War, urged the necessity for such a corps:

SURGEON-GENERAL'S OFFICE, }
WASHINGTON, Aug. 21, 1862. }

Honorable Edwin M. Stanton, Secretary of War:

SIR: In accordance with your verbal permission, I have the honor to submit to you the inclosed project for an Hospital Corps, and to ask your favorable consideration for the same. The plan is merely submitted as a basis on which the corps can be organized; much will remain to be done by regulations; and I propose, should you approve the inclosed outline, to ask for a board of medical officers to perfect the organization. I have not considered it necessary to enter into details; the first thing essential is to obtain your sanction to the organization of such a corps. The

need for it is most urgent. In no battle yet have the wounded been properly looked after; men under pretense of carrying them off the field leave the ranks and seldom return to their proper duties. The adoption of this plan would do away with the necessity of taking men from the line of the army to perform the duties of nurses, cooks, and attendants, and thus return sixteen thousand men to duty in the ranks. In view of these facts, and many others which could be adduced, I respectfully ask your approval of the inclosed project.

I am, sir, very respectfully,

Your obedient servant,

(Signed) WILLIAM A. HAMMOND,
Surgeon General.

To this the following answer was received:

WAR DEPARTMENT, }
WASHINGTON CITY, D. C., Aug. 29, 1862. }

SIR: The Secretary of War directs me to acknowledge the receipt of your communication of the 21st instant, submitting a project for a Hospital Corps, and to inform you that the subject was referred to the General-in-Chief, whose views, adverse to the project, are expressed in the following words: "Our army trains are already much too large, and very seriously impede the movements of our troops in the field. The enemy have great advantages over us in this respect. To organize such a medical force as is here proposed would, besides involving enormous expenses, greatly increase this evil. Moreover, the presence of non-combatants on or near the field of battle is always detrimental, as most panics and stampedes originate with them. Medical soldiers would not obviate the necessity of sending fighting soldiers from their ranks with their wounded, for the former would seldom be near enough to the enemy to perform that duty. The soldier can be very much relieved by hiring cooks, nurses, and attendants in hospitals, whenever the circumstances will permit; but I can see no advantage in having them enlisted for that special purpose. All persons so employed are, by law, subject to Army regulations. I regard this project as one calculated to increase the expenses and immobility of our army by adding to it a large corps of non-combatants, without any corresponding advantages. I therefore report against its adoption."

(Signed) P. H. WATSON,
Ass't Sec'y of War.

SURGEON-GENERAL, Washington, D.C.

A second appeal was made to the Secretary of War on September 7, 1862:

SURGEON-GENERAL'S OFFICE, }
WASHINGTON, D. C., Sept. 7, 1862. }

SIR: I have the honor to ask your attention to the frightful state of disorder existing in the arrangements for removing the wounded from the field of battle. The scarcity of ambulances, the want of organization, the drunkenness and incompetency of the drivers, the total absence of ambulance attendants, are now working their legitimate results, results which I feel I have no right to keep from the knowledge of the Department. The whole system should be under the charge of the Medical Department; an ambulance corps should be organized and set in instant operation. I have already laid before you a plan for such an organization which I think covers the whole ground, but which I am sorry to find does not meet with the approval of the General-in-Chief. I am not wedded to it. I only ask that *some* system may be adopted by which the removal of the sick from the field of battle may be speedily accomplished, and the suffering to which they are now subjected may be, in future, as far as possible avoided. Up to this date six hundred wounded still remain on the battle-field in consequence of an insufficiency of ambulances and a want of a proper system for regulating their removal, in the Army of Virginia. Many have died of starvation, many more will die in consequence of exhaustion, and all have endured torments which might have been avoided. I ask, sir, that you will give me your aid in this matter, that you will interpose to prevent a recurrence of such consequences as have followed the recent battle, consequences which will inevitably ensue on the next important engagement if something is not done to obviate them.

I am, sir, very respectfully,

Your obedient servant,

(Signed) WILLIAM A. HAMMOND,
Surgeon-General U. S. A.

HONORABLE E. M. STANTON, Secretary of War.

This also was referred to the General-in-Chief, and was returned endorsed as follows:

HEADQUARTERS OF THE ARMY, }
WASHINGTON, Sept. 15, 1862. }

I am informed by the Quartermaster-General that every effort is being made to supply a large number of ambulances. It is proper to remark, however, that the enemy have provided for their wounded on every battle-field with not one-half the ambulances and other facilities provided for our armies. I do not perceive how the drunkenness and incompetency of drivers are likely to be prevented any more by putting the ambulances

exclusively under the direction of the Medical Department. It is the duty of all officers to furnish fatigue parties, properly officered, on the requisition of medical officers, for the care and removal of the wounded, and it is the duty of all medical officers to make such requisitions, and if not filled, to report the neglect. No such neglect has been reported by medical officers on the recent battle-fields. My objections to the proposed organization of a separate non-combatant corps to be attached to the Medical Department were set forth in my endorsement upon a former letter of the Surgeon-General.

(Signed) H. W. HALLECK,
General-in-Chief.

Owing to the opposition of the General-in-Chief, no further steps were taken in this direction at this time. In the meantime the medical officers in the field had been compelled to devise the best means they could for the immediate care of the wounded after battle. At the suggestion of Medical-Director Tripler, the following order was issued in the Army of the Potomac on October 3d, 1861:

HEADQUARTERS ARMY OF THE POTOMAC, }
WASHINGTON, Oct. 3, 1861. }

GENERAL ORDER No. 20.

6. The hospital attendants, to the number of ten men to the regiment, and the regimental bands, will be assembled under the supervision of the brigade surgeons, and will be drilled one hour each day, except Sunday, by regimental medical officers, in setting up and dismantling the hand-stretchers, litters, and ambulances; in handling men carefully; placing them upon the litters and ambulance beds; putting them into the ambulances, taking them out, etc.; carrying men upon the hand-stretchers (observing that the leading bearer steps off with the *left* foot, and the rear bearer with the *right*); in short, in everything that can render this service effective and the most comfortable for the wounded who are to be transported.

By command of Major-General McClellan.
(Signed) S. WILLIAMS,
Assistant Adjutant-General.

Similar plans were adopted in other armies, but the first and most complete ambulance system was that established in August, 1862, at the instance of Surgeon Jonathan Letterman, U. S. A., Medical Director of the Army of the Potomac.

The plan is clearly set forth in the accompanying order:

HEADQUARTERS ARMY OF THE POTOMAC, }
Camp near Harrison's Landing, Va., }
August 2, 1862. }

GENERAL ORDER No. 147.

The following regulations for the organization of the Ambulance Corps and the management of ambulance trains are published for the information and government of all concerned.

Commanders of army corps will see that they are carried into effect without delay:

1. The ambulance corps will be organized on the basis of a captain to each army corps as the commandant of the ambulance corps, a first lieutenant for a division, second lieutenant for a brigade, and a sergeant for each regiment.

2. The allowance of ambulances and transport carts will be: One transport cart, one 4-horse and two 2-horse ambulances, for a regiment; one 2-horse ambulance for each battery of artillery; and two 2-horse ambulances for the headquarters of each army corps. Each ambulance will be provided with two stretchers.

3. The privates of the ambulance corps will consist of two men and a driver to each ambulance, and one driver to each transport cart.

4. The captain is the commander of all the ambulances and transport carts in the army corps, under the direction of the Medical Director. He will pay special attention to the condition of the ambulances, horses, harness, etc., requiring daily inspections to be made by the commanders of division ambulances, and reports thereof to be made to him by these officers. He will make a personal inspection once a week of all the ambulances, transport carts, horses, harness, etc., whether they have been used for any other purpose than the transportation of the sick or wounded, and medical supplies; reports of which will be transmitted through the Medical Director of the Army Corps to the Medical Director of the Army every Sunday morning. He will institute a drill in his corps, instructing his men in the most easy and expeditious method of putting men in and taking them out of the ambulances, taking men from the ground and placing and carrying them on stretchers, observing that the front man steps off with the left foot and the rear man with the right, etc. He will be especially careful that the ambulances and transport carts are at all times in order, provided with attendants, drivers, horses, etc., and the keg daily rinsed and filled with fresh water, that he may be able to move at any moment.

Previous to and in time of action he will receive from the Medical Director of the Army Corps his orders for the distribution of the ambulances, and the points to which he will carry the wounded, using the light two-horse ambulances for bringing men from the field, and the four-horse ones for carrying those already attended to farther to the rear, if the Medical Director considers it necessary. He will give his personal attention to the removal of the sick and wounded from the field and to and from the hospitals, going from point to point to ascertain what may be wanted, and to see that his subordinates (for whose conduct he will be responsible) attend to their duties in taking care of the wounded, treating them with gentleness and care, and removing them as quickly as possible to the places pointed out; and that the ambulances reach their destination. He will make a full and detailed report after every action and march, of the operations of the ambulance corps.

5. The first lieutenant assigned to the ambulance corps of a division will have complete control, under the commander of the whole corps and the Medical Director, of all the ambulances, transport carts, ambulance horses, etc., in the division. He will be the acting assistant quartermaster for the division ambulance corps, and will receipt and be responsible for the property belonging to it, and be held responsible for any deficiencies in ambulances, transport carts, horses, harness, etc., pertaining to the ambulance corps of the division. He will have a traveling cavalry forge, a blacksmith, and a saddler, who will be under his orders, to enable him to keep his train in order. He will receive a daily inspection report of all the ambulances, horses, etc., under his charge, from the officer in charge of brigade ambulance corps, will see that the subordinates attend strictly to their duties at all times, and will inspect the corps under his charge once a week; a report of which inspection he will transmit to the commander of the ambulance corps.

6. The second lieutenant in command of the ambulances of a brigade will be under the immediate orders of the commander of the ambulance corps for the division, and have superintendence of the ambulance corps for the brigade.

7. The sergeant in charge of the ambulance corps for a regiment will conduct the drills, inspections, etc., under the orders of the commander of the brigade ambulance corps, and will be particular in enforcing rigidly all orders he may receive from his superior officers. The officers and non-commissioned officers of this corps will be mounted.

8. The detail for this corps will be made with care by commanders of army corps, and no officer or man will be selected for this duty except those known to be active and efficient; and no man will be relieved except by orders from these headquarters. Should any officer or man detailed for this duty be found not fitted for it, representations of the fact will be made by the Medical Director of the Army Corps to the Medical Director of this army.

9. Two medical officers from the reserve corps of surgeons of each division, and a hospital steward, who will be with the medicine wagon, will be detailed by the Medical Director of the Army Corps to accompany the ambulance train when on the march, the trains of each division being kept together, and will see that the sick and wounded are properly attended to. A medicine wagon will accompany each train.

10. The officers connected with the corps must be with the trains on the march, observing that no one rides in the ambulances without the authority of the medical officers, except in urgent cases; but men must not be allowed to suffer, and the officers will, when the medical officers cannot be found, use a sound discretion in this matter, and be especially careful that the men and drivers are in their proper places. The place for the ambulances is in front of all the wagon trains.

11. When in camp the ambulances, transport carts, and ambulance corps will be parked with the brigade. They will be used on the requisition of the regimental medical officers, transmitted to the commander of the brigade ambulance corps, for transporting the sick to various points and procuring medical supplies, and *for nothing else*. The non-commissioned officer in charge will always accompany the ambulances or transport carts when on this or any other duty, and he will be held responsible that they are used for none other than their legitimate purposes. Should any officer infringe upon this order, regarding the uses of ambulances, etc., he will be reported by the officer or non-commissioned officer in charge to the commander of the train, all the particulars being given.

12. The officers in charge of a train will at once remove anything not legitimate, and if there be not room for it in the baggage wagons of the regiment, will leave it on the road. Any attempt by a superior officer to prevent him from doing his duty in this or any other instance he will promptly report to the Medical Director of the Army Corps, who will lay the matter before the commander of that corps. The latter will, at the earliest

possible moment, place the officers offending in arrest for trial for disobedience of orders.

13. Good, serviceable horses will be used for the ambulances and transport carts, and will not be taken for any other purpose, except by orders from these headquarters.

14. The uniform of this corps is: For privates, a green band two inches broad around the cap, a green half-chevron two inches broad on each arm above the elbow, and they are to be armed with revolvers. Non-commissioned officers to wear the same band around the cap as a private, and chevrons two inches broad, and green, with the point toward the shoulder, on each arm above the elbow.

15. No person will be allowed to carry from the field any wounded or sick, except this corps.

16. The commanders of the ambulance corps, on being detailed, will report without delay to the Medical Director at these headquarters for instructions. All division, brigade or regimental quartermasters having any ambulances, transport carts, ambulance horses or harness, etc., in their possession, will turn them in at once to the commander of the division ambulance corps.

By command of Major-General McClellan.

(Signed) S. WILLIAMS,
Assistant Adjutant-General.

Thus for the first time in the history of our Army was the French system adopted. The advantages accruing from this organization became speedily manifest. At the battle of Antietam, in September, 1862, by the active and energetic exertions of the members of this corps, the disabled of the right wing of the army (there was no ambulance system on the left) were rapidly conveyed from the scene of conflict to the hospitals in the rear. The train of ambulances plied incessantly between the battle-ground and the field hospital. During the night of the battle, all of our wounded in the widely extended field were removed to shelter and received the necessary surgical attention. Different members of the corps behaved with the utmost gallantry, passing freely under fire in their search for the fallen, and advancing at times to the extreme verge of the enemy's pickets. All of our wounded having thus been collected at the temporary depots, such as were deemed best able to undergo further transportation were carefully selected. These, during the following two or three days, were then conveyed by the ambulance train to

Frederick City, Md., the nearest point of railway connections. At the first battle of Fredericksburg the results of the persevering endeavors of the ambulance corps were not less happy. During the night following the battle, all of the wounded remaining on the ground not absolutely in the hands of the enemy were safely conveyed to the city of Fredericksburg and its neighborhood. When it subsequently became necessary to evacuate the city of Fredericksburg for military reasons, the wounded were again placed upon the train and safely reached the opposite bank of the river. These fortunate results were, however, obtained at the expense of the ambulance corps, which suffered the loss of one officer and several privates killed, besides others who were captured during their humane efforts to remove their fallen countrymen.

In the Army of the Tennessee, with the exception of General Sherman's corps, no system for the formation of an ambulance train, for confining ambulances to their proper use, or for the ready removal of wounded, had existed prior to March, 1863, when Medical Inspector E. P. Vollum, U. S. A., urged upon General Grant the necessity of establishing an ambulance corps. The proposition was cheerfully entertained, and on March 30th, 1863, the following order was issued from the headquarters of the Department of the Tennessee:

HEADQUARTERS DEPARTMENT OF THE TENNESSEE, }
YOUNG'S POINT, La., March 30, '63. }
GENERAL ORDER No. 22.

Army corps commanders will at once enforce the following regulations:

1. All ambulances with the army in the field will be turned in to division quartermasters, each division retaining all the ambulances it now has.

2. Division ambulance trains will be formed in charge of one commissioned officer for each division, one non-commissioned officer for each brigade, and one driver and two enlisted men for each ambulance, to be detailed for that purpose, who will be subject to the direction of the chief surgeon of the division.

3. The officers in charge of division ambulance trains will have direct military control over all the non-commissioned officers and privates of their respective trains, and will see that the ambulances are only used for

conveying sick or wounded, carrying provisions for hospitals when necessary, and other purposes connected with the relief of sick and wounded.

4. In removing sick and wounded the enlisted men detailed to attend ambulances, as above directed, will alone be permitted to accompany them, and that they may be recognized as having been appointed for this purpose, each of them will wear a white badge on the left arm above the elbow, the same to be provided by the Medical Department.

5. Division quartermasters will be responsible for all public property connected with said division ambulance trains, and will exercise authority over all matters pertaining to the packing and preservation of the same.

6. Army corps commanders and medical directors of army corps will make such regulations for the removal of wounded and sick as will, in their judgment, best secure the end desired to be attained under this order.

By order of Major-General U. S. Grant.

(Signed) JNO. A. RAWLINS,
Assistant Adjutant-General.

Actual experience in the field suggested various changes in the original plan adopted in the Army of the Potomac, and on August 22d, 1863, Surgeon Letterman laid before the General Commanding revised regulations, which were published in General Orders No. 85, Headquarters of the Army of the Potomac, August 24th, 1863:

The following revised regulations for the organization of the ambulance corps and the management of the ambulance trains are published in lieu of Special Orders No. 147, Headquarters Army of the Potomac, August 2d, 1862, for the information and government of all concerned. Commanders of army corps will see that they are carried into effect:

1. The army corps is the unit of organization for the ambulance corps, and the latter will be organized upon the basis of a captain as the commandant of the corps, one first lieutenant for each division, one second lieutenant for each brigade, one sergeant for each regiment.

2. The privates of this corps will consist of two men and one driver to each ambulance, and one driver to each medicine wagon.

3. The two-horse ambulances only will be used, and the allowance until further orders to each corps will be upon the basis of three to each regiment of infantry, two to each regiment of cavalry, one to each battery of artillery (to which it will be permanently at-

tached), and two to the headquarters of each army corps; and two army wagons to each division. Each ambulance will be provided with two stretchers.

4. The captain is the commander of all the ambulances, medicine and other wagons in the corps, under the immediate direction of the medical director of the army corps to which the ambulance corps belongs. He will pay special attention to the condition of the ambulances, wagons, horses, harness, etc., and see that they are at all times in readiness for service, that the officers and men are properly instructed in their duties, and that these duties are performed, and that the regulations of the corps are strictly adhered to by those under his command. He will institute a drill in his corps, instructing his men in the most easy and expeditious method of putting men in and taking them out of the ambulances, lifting them from the ground, and placing and carrying them on stretchers, in the latter case observing that the front man steps off with the left foot and the rear man with the right, etc.,—that in all cases his men treat the sick and wounded with gentleness and care; that the ambulances and wagons are at all times provided with attendants, drivers, horses, etc.; that the vessels for carrying water are constantly kept clean and filled with fresh water; that the ambulances are not used for any other purpose than that for which they are designed and ordered. Previous to the march he will receive from the medical director of the army corps his orders for the distribution of the ambulances for gathering up the sick, and previous to and in time of action he will receive orders from the same officer where to send his ambulances, and to what points the wounded are to be carried. He will give his personal attention to the removal of the sick and wounded from the field in time of action, going from place to place to ascertain what may be wanted, to see that his subordinates (for whose conduct he will be responsible) attend faithfully to their duties in taking care of the wounded and removing them as quickly as may be found consistent with their safety to the field hospitals, and see that the ambulances reach their destination. After every battle he will make a report, in detail, of the operations of his corps, to the medical director of the army corps to which he belongs, who will transmit a copy with such remarks as he may deem proper to the Medical Director of this army. He will give his personal attention to the removal of the sick when they are required to be sent to general hospitals, or to other points as may be ordered. He will make a personal inspection

at least once a month of everything pertaining to the ambulance corps, a report of which will be made to the medical director of the corps, who will transmit a copy to the Medical Director of this army. This inspection will be minute and made with care, and will not supersede the constant supervision which he must at all times exercise over his corps. He will also make a weekly report according to the prescribed form to the same officer, who will forward a copy to the Medical Director of this army.

5. The first lieutenant assigned to the ambulance corps for a division will have complete control, under the captain of his corps and the medical director of the army corps, of all the ambulances, medical and other wagons, horses, etc., and men in that portion of the ambulance corps. He will be the acting assistant-quartermaster for that portion of the corps, and will receipt for and be responsible for all the property belonging to it, and be held responsible for any deficiency in anything appertaining thereto. He will have a traveling cavalry forge, a blacksmith, and a saddler, who will be under his orders, to enable him to keep his train in order. His supplies will be drawn from the depot quartermaster upon requisitions approved by the captain of his corps and the commander of the army corps to which he is attached. He will exercise a constant supervision over his train in every particular, and keep it at all times ready for service. Especially before a battle will he be careful that everything be in order. The responsible duties devolving upon him in time of action render it necessary that he be active and vigilant, and spare no labor in their execution. He will make reports to the captain of the corps, upon the form prescribed, every Saturday morning.

6. The second lieutenant will have command of the portion of the ambulance corps for a brigade, and will be under the immediate orders of the commander of the ambulance for a division, and the injunctions in regard to care and attention and supervision prescribed for the commander of the division he will exercise in that portion under his command.

7. The sergeant will conduct drills, inspections, etc., under the orders and supervision of the commander of the ambulances for a brigade, be particular in enforcing all orders he may receive from his superior officers, and that the men are attentive to their duties. The officers and non-commissioned officers will be mounted. The non-commissioned officers will be armed with revolvers.

8. Two medical officers and two hospital stewards will be detailed daily by roster by

the surgeon-in-chief of the division, to accompany the ambulances for the division when on the march, whose duties will be to attend to the sick and wounded with the ambulances and see that they are properly cared for. No man will be permitted by any line officer to fall to the rear to ride in the ambulances unless he has written permission from the senior medical officer of his regiment to do so. These passes will be carefully preserved, and at the close of march be transmitted by the senior medical officer with the train, with such remarks as he may deem proper, to the surgeon-in-chief of his division. A man who is sick or wounded, who requires to be carried in an ambulance, will not be rejected; should he not have the permission required, the surgeon of the regiment who has neglected to give it will be reported at the close of the march by the senior surgeon with the train, to the surgeon-in-chief of his division.

When on the march, one-half the privates of the ambulance corps will accompany on foot the ambulances to which they belong, to render such assistance as may be required. The remainder will march in the rear of their respective commands, to conduct, under the orders of the medical officers, such men as may be unable to proceed to the ambulances, or who may be incapable of taking proper care of themselves, until the ambulances come up. When the case is of so serious a nature as to require it, the surgeon of the regiment or his assistant will remain and deliver the man to one of the medical officers with the ambulances. At all other times the privates will be with their respective trains.

The medicine wagons will on the march be in their proper places in the rear of the ambulances for each brigade.

Upon ordinary marches the ambulances and wagons belonging to the train will follow immediately in the rear of the division to which it is attached. Officers connected with the corps must be with the trains when on the march, observing that no one rides in any of the ambulances except by authority of medical officers. Every necessary facility for taking care of the sick and wounded upon the march will be afforded the medical officers by the officers of the ambulance corps.

9. When in camp the ambulances will be parked by division. The regular roll-calls, reveille, retreat and tattoo will be held, at which at least one commissioned officer will be present and receive the reports. Stable duty will be at hours fixed by the captain of the corps, and at this time, while the drivers are in attendance upon their animals, the privates will be employed in keeping the

ambulances to which they belong, in order, keeping the vessels for carrying water filled with fresh water, and in general police duties.

Should it become necessary for a regimental medical officer to use one or more ambulances for transporting sick and wounded, he will make a requisition upon the commander of the ambulances for a division, who will comply with the requisition. In all cases when ambulances are used, the officers, non-commissioned officers and men belonging to them will accompany them; should one ambulance only be required, a non-commissioned officer as well as the men belonging to it will accompany it. The officers of the ambulance corps will see that ambulances are not used for any other purpose than that for which they are designed, viz.: the transportation of sick and wounded, and, in urgent cases only, of medical supplies. All officers are expressly forbidden to use them, or to require them to be used, for any other purpose. When ambulances are required for the transportation of sick or wounded at division or brigade headquarters, they will be obtained as they are needed for this purpose from the division train, but no ambulances belonging to this corps will be retained at such headquarters.

10. Good, serviceable horses will be used for the ambulances and medicine wagons, and will not be taken for any other purpose except by orders from these headquarters.

11. The corps will be designated, for sergeants, by a green band $1\frac{1}{4}$ inches broad around the cap, and chevrons of the same material, with the point toward the shoulder, on each arm, above the elbow; for privates, by a band the same as for sergeants around the cap, and a half-chevron of the same material on each arm above the elbow.

12. No persons except the proper medical officers or the officers and non-commissioned officers and privates of this corps will be permitted to take or accompany sick or wounded to the rear, either on the march or upon the field of battle.

13. No officer or man will be selected for this service except those who are active and efficient, and they will be detailed and relieved by corps commanders only.

14. Corps commanders will see that the foregoing regulations are carried into effect.

By command of Major-General Meade.

(Signed) S. WILLIAMS,
Ass't Adjutant-Gen'l.

The establishment of a uniform system of ambulance corps in the armies of the United States was not accomplished until the spring of 1864, when Congress passed the following

Act, which was approved by the President on March 1st, 1864, and promulgated by the Secretary of War in General Orders No. 106, War Department, A.-G.O., Washington, D.C., March 16th, 1864:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled: That the medical director or chief medical officer of each army corps shall, under the control of the medical director of the army to which such army corps belongs, have the direction and supervision of all ambulances, medicine and other wagons, horses, mules, harness, and other fixtures appertaining thereto, and of all officers and men who may be detailed or employed to assist him in the management thereof, in the army in which he may be serving.*

Sec. 2. And be it further enacted: That the commanding officer of each army corps shall detail officers and enlisted men for service in the ambulance corps of such army corps, upon the following basis, viz.: One captain, who shall be commandant of said ambulance corps; one first lieutenant for each division in such army corps; one second lieutenant for each brigade in such army corps; one sergeant for each regiment in such army corps; three privates for each ambulance, and one private for each wagon; and the officers and non-commissioned officers of the ambulance corps shall be mounted: Provided, That the officers, non-commissioned officers, and privates so detailed for each army corps shall be examined by a board of medical officers of such army corps as to their fitness for such duty; and that such as are found to be not qualified shall be rejected, and others detailed in their stead.

Sec. 3. And be it further enacted: That there shall be allowed and furnished to each army corps two-horse ambulances upon the following basis, to wit: Three to each regiment of infantry of five hundred men or more; two to each regiment of more than two hundred and less than five hundred men; and one to each regiment of infantry of less than two hundred men; two to each regiment of cavalry of five hundred men or more; and one to each regiment of cavalry of less than five hundred men; one to each battery of artillery—to which battery of artillery it shall be permanently attached; to the headquarters of each army corps two such ambulances; and to each division train of ambulances two army wagons; and ambulances shall be allowed and furnished to division brigades and commands not attached to any army corps upon the same basis, and each ambulance shall be provided with such number of stretchers and other appliances as shall be prescribed by the Surgeon-General. Provided, That the ambulances and wagons herein mentioned shall be furnished, as far as practicable, from the ambulances and wagons now in the service.

Sec. 4. And be it further enacted: That horse- and mule-litters may be adopted or authorized by

*The number of men detailed by this law seems barely sufficient to perform the work of ambulance and dressing-station orderlies. The only inference is that during the war of 1861-65 the bearer work was done by fatigue details from the line of the Army.

the Secretary of War, in lieu of ambulances, when judged necessary, under such rules and regulations as may be prescribed by the medical director of each army corps.

Sec. 5. And be it further enacted: That the captain shall be the commander of all the ambulances, medicine and other wagons in the corps, under the immediate direction of the medical director or chief medical officer of the army corps to which the ambulance corps belongs. He shall pay special attention to the condition of the ambulances, wagons, horses, mules, harness and other fixtures appertaining thereto, and see that they are at all times in readiness for service; that the officers and men of the ambulance corps are properly instructed in their duties, and that their duties are performed, and that the regulations which may be prescribed by the Secretary of War, or the Surgeon-General, for the government of the ambulance corps, are strictly observed by those under his command. It shall be his duty to institute a drill in his corps, instructing his men in the most easy and expeditious manner of moving the sick and wounded, and to require in all cases that the sick and wounded shall be treated with gentleness and care, and that the ambulances and wagons are at all times provided with attendants, drivers, horses, mules, and whatever may be necessary for their efficiency; and it shall be his duty also to see that the ambulances are not used for any other purpose than that for which they are designed and ordered. It shall be the duty of the medical director or chief medical officer of the army corps, previous to a march, and previous to and in time of action, or whenever it may be necessary to use the ambulances, to issue the proper orders to the captain for the distribution and management of the same, for collecting the sick and wounded and conveying them to their destination. And it shall be the duty of the captain faithfully and diligently to execute such orders. And the officers of the ambulance corps, including the medical director, shall make such reports, from time to time, as may be required by the Secretary of War, the Surgeon-General, the medical director of the army or the commanding officer of the army corps in which they may be serving; and all reports to higher authority than the commanding officer of the army corps shall be transmitted through the medical director of the army to which such army corps belongs.

Sec. 6. And be it further enacted: That the first lieutenant assigned to the ambulance corps for a division shall have complete control, under the captain of his corps and the medical director of the army corps, of all the ambulances, medicine and other wagons, horses, mules, and men in that portion of the ambulance corps. He shall be the acting assistant-quartermaster for that portion of the ambulance corps, and will receipt for and be responsible for all the property belonging to it, and be held responsible for any deficiency in anything appertaining thereto. He shall have a traveling cavalry forge, a blacksmith, and a saddler, who shall be under his orders, to enable him to keep his train in order. He shall have authority to draw supplies from the depot quartermaster, upon requisition approved by the captain of his corps, the medical director, and the commander of the army corps to which he is attached. It shall be his duty to exercise a constant supervision over his train in every particular, and keep it at all times ready for service.

Sec. 7. And be it further enacted: That the second lieutenant shall have command of the portion

of the ambulance corps for a brigade, and shall be under the immediate orders of the first lieutenant, and he shall exercise a careful supervision over the sergeants and privates assigned to the portion of the ambulance corps for his brigade; and it shall be the duty of the sergeants to conduct drills and inspections of the ambulances, under his orders, of their respective regiments.

Sec. 8. And be it further enacted: That the ambulances in the armies of the United States shall be used only for the transportation of the sick and wounded, and, in urgent cases only, for medical supplies, and all persons shall be prohibited from using them, or requiring them to be used, for any other purpose. It shall be the duty of the officers of the ambulance corps to report to the commander of the army corps any violation of the provisions of this section, or any attempt to violate the same. And any officer who shall use an ambulance, or require it to be used, for any other purpose than as provided in this section, shall, for the first offense, be publicly reprimanded by the commander of the army corps in which he may be serving, and for the second offense shall be dismissed from the service.

Sec. 9. And be it further enacted: That no person except the proper medical officers, or the officers, non-commissioned officers, and privates of the ambulance corps, or such persons as may be specially assigned, by competent military authority, to duty with the ambulance corps for the occasion, shall be permitted to take or accompany any sick or wounded men to the rear, either on the march or upon the field of battle.

Sec. 10. And be it further enacted: That the officers, non-commissioned officers, and privates of the ambulance corps shall be designated by such uniform or in such manner as the Secretary of War shall deem proper: Provided, That officers and men may be relieved from service in said corps, and others detailed to the same, subject to the examination provided in the second section of this Act, in the discretion of the commanders of the armies in which they may be serving.

Sec. 11. And be it further enacted: That it shall be the duty of the commander of the army corps to transmit to the Adjutant General the names and rank of all officers and enlisted men detailed for service in the ambulance corps of such army corps, stating the organizations from which they may have been so detailed; and, if such officers and men belong to volunteer organizations, the Adjutant-General shall thereupon notify the governors of the several States in which such organizations were raised of their detail for such service; and it shall be the duty of the commander of the army corps to report to the Adjutant-General from time to time the conduct and behavior of the officers and enlisted men of the ambulance corps, and the Adjutant-General shall forward copies of such reports, so far as they relate to officers and enlisted men of volunteer organizations, to the governors of the States in which such organizations were raised.

Sec. 12. And be it further enacted: That nothing in this Act shall be construed to diminish or impair the rightful authority of commanders of armies, army corps, or separate detachments, over the medical and other officers and the non-commissioned officers and privates of their respective commands.

Approved March 11th, 1864.

By the passage of this Act the authority of the Medical Department over the ambulance

corps was fully established. How effectually, and at the same time how considerately, the medical officers availed themselves of the power thus conferred upon them, is strikingly shown in the systematic manner with which the immense number of wounded after the battles of the Wilderness, Spottsylvania Court House, Cold Harbor, Petersburg, and of the campaigns in Georgia and the Carolinas, were cared for on the battle-field, were removed to field and base hospitals, and were finally distributed in general hospitals throughout all parts of the United States. Notwithstanding the opinion of General H. W. Halleck, no panics or stampedes were reported as having been caused by the presence of the non-combatants of the ambulance corps.

Major Heizmann, Medical Department U. S. A., in his admirable paper on "Military Sanitation in the Sixteenth, Seventeenth and Eighteenth Centuries," writes:

The persistence of regimental hospitals in England and America to the beginning of the present century is a relic of the company methods of the sixteenth century.

England learned in the Crimean War the utter inadequacy of such sanitary organizations; but it was not until the War of Secession, in the face of a threatened break-down, and literally under fire, that we abandoned a method which for a hundred years had in other armies been relegated to history. Major Winne, Medical Department U. S. A., writes:*

Our sick and wounded in Mexico had no special provision made for them. The regulation temporary details for field service were taken from the line. . . . The outbreak of the Civil War found us absolutely without organization of any kind for taking prompt care of large numbers of wounded. None but those who served in the field then can realize the chaos which existed.

What was finally accomplished, and at what cost, is a part of the history of that terrific struggle. Our author concludes:

The greater number of medical officers who distinguished themselves in our war, by carrying the operations of their department to a height of usefulness and perfection never before known, and which won the un-

qualified admiration of Europe, have passed away. It is needless to recapitulate their names. Their monument is perpetuated in the medical and surgical history of the war. "Monumentum ære perennius," and as, in the noble words of Lord Bacon, "they attained worthy ends and expectations," their memories are cherished in the hearts of their surviving comrades.

With the close of the war, so rich in dearly bought experience, the Medical Department, apparently content to embalm that experience between the covers of its great history, returned to the methods of anti-bellum days, and the Army again became the advance guard of civilization upon our western frontier.

A generation of medical officers has grown up who know not war, and whose experience, gained at best in Indian outbreaks and expeditions, but ill fits them to meet the exigencies of that for which alone they exist. The art of war in its destructive phases is for the line officer. The art of military sanitation—the most special and yet most comprehensive of all the specialties of our profession—is for the medical officer.

The history of the Medical Department since 1865 may be outlined as follows:

On July 28th, 1866, the following Act of Congress became law:

The Medical Department of the Army shall consist of one surgeon-general, with the rank of brigadier-general; one assistant surgeon-general, with the rank of colonel of cavalry; one chief medical purveyor, and four assistant medical purveyors, with the rank of lieutenant-colonel of cavalry; sixty surgeons, with the rank of major of cavalry; one hundred and fifty assistant-surgeons, with the rank of lieutenant of cavalry for the first three years of service, and the rank of captain of cavalry after three years' service. . . .

On March 3d, 1869, all promotion or appointment in the Medical Department (and other staff corps) was suspended, and thereafter till 1874 the Department simply marked time. Never since its reorganization had all its offices been filled; and in 1874, when examinations for appointment were reinstituted, there were nearly sixty vacancies.

By Act of Congress approved June 23d, 1874, the Medical Department of the Army thereafter consisted of one surgeon-general with the rank, pay and emoluments of a brigadier-general; one assistant surgeon-general and one chief medical purveyor,

* *Journal of the Military Service Institute*, No. 52.

each with the rank, pay and emoluments of a colonel; and two assistant medical purveyors, with the rank, pay and emoluments of lieutenant-colonels; fifty surgeons, with the rank, pay and emoluments of majors; one hundred and fifty assistant-surgeons, with the rank, pay and emoluments of lieutenants of cavalry for the first five years' service, and with the rank, pay and emoluments of captains of cavalry after five years' service. And all original vacancies in the grade of assistant-surgeon were to be filled by selection by competitive examination; and the Secretary of War was authorized to appoint, from the enlisted men of the Army, or cause to be enlisted, as many hospital stewards as the service might require, to be permanently attached to the Medical Department, under such regulations as he might prescribe.

The permanent attachment of hospital stewards to the Medical Department, reiterated in this law, was the germ of an organization which thereafter sprang into existence, and which is destined to radically change the methods that have for so many years obtained in our service—methods which were only temporarily changed to meet the exigences of the most stupendous war the world has seen.

The Act of June 26th, 1876, declared that the number of assistant-surgeons allowed by law should be reduced to one hundred and twenty-five; in addition to the grades then allowed by law, there should be four surgeons with the rank, pay and emoluments of colonels, and eight surgeons with the rank, pay and emoluments of lieutenant-colonels, to be promoted by seniority from the medical officers of the Army.

No further legislation affecting the Medical Department became law until March 1st, 1887, when the following Act was passed:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled: That the hospital corps of the United States Army shall consist of hospital stewards, acting hospital stewards, and privates; and all necessary hospital services in garrison, camp, or field (including ambulance service) shall be performed by the members thereof, who shall be regularly enlisted in the military service; said corps shall be permanently attached to the Medical Department, and shall not be included in the effective strength of the Army, nor counted as part of the enlisted force provided by law.

That the Secretary of War is empowered to appoint as many hospital stewards as, in his judgment, the service may require, but not more than one hospital steward shall be stationed at any post or place without special authority of the Secretary of War.

That the pay of hospital stewards shall be forty-five dollars per month, with the increase on account of length of service as is now or may hereafter be allowed by law to other enlisted men. They shall have rank with ordnance sergeants and be entitled to all the allowances appertaining to that grade.

That no person shall be appointed a hospital steward unless he shall have passed a satisfactory examination before a board of one or more medical officers as to his qualifications for the position, and demonstrated his fitness therefor by service of not less than twelve months as acting hospital steward. And no person shall be designated for such examination except by written authority of the Surgeon-General.

That the Secretary of War is empowered to enlist, or cause to be enlisted, as many privates of the hospital corps as the service may require; and to limit or fix the number, and make such regulations for their government as may be necessary; and any enlisted man in the Army shall be eligible for transfer to the hospital corps as a private. They shall perform duty as wardmasters, corps nurses, and attendants in hospitals, and as stretcher-bearers, litter-bearers, and ambulance attendants in the field, and such other duties as may by proper authority be required of them.

That the pay of privates of the hospital corps shall be thirteen [since increased to eighteen] dollars per month, with the increase on account of length of service as is now or may hereafter be allowed by law to other enlisted men; they shall be entitled to the same allowances as a corporal of the arm of service with which they are on duty.

That privates of the hospital corps may be detailed as acting hospital stewards by the Secretary of War, upon the recommendation of the Surgeon-General, whenever the necessities of the service require it; and when so detached their pay shall be twenty-five dollars per month, with increase as above stated. Acting hospital stewards, when educated in the duties of the position, may be eligible for examination for appointment as hospital steward, as above provided.

Loosely drawn and elastic as is this law, no Act of Congress since that of 1847—which for the first time recognized the military status of the medical officer—is more important to the present efficiency and future usefulness of the Medical Department. All the regulations governing this organization are of necessity based upon this law, and very well meet the current requirements of the various detachments scattered throughout the country; but such active-service experience as has been gained therewith has shown that a more closely knit military organization is necessary. This is directly in line with the experience of military medical officers in other armies. And there can be no question that a very much more detailed organization

than now exists in the hospital corps will be necessary when we find ourselves, as we soon surely will, in the midst of a war. Let us hope that we will not again have to organize under fire.

To obviate the defective organization above set forth, a bill was introduced in Congress in December, 1892, as follows:

That the companies of the hospital corps organized by the Secretary of War in the Medical Department of the Army are hereby established upon the same military status as companies of infantry, and shall hereafter be known as Companies of the Hospital Corps.

That each company shall consist of eight hospital sergeants—one of whom shall be selected as first sergeant, and one as quartermaster sergeant,—six hospital corporals, two musicians, one artificer, and as many privates, not exceeding one hundred, as the President may direct.

That the hospital sergeants shall be detailed as such from the hospital stewards, the hospital corporals from the acting hospital stewards, and the remaining members of the companies from the privates of the hospital corps U. S. Army, and each shall receive only the pay of his grade in the hospital corps.

That the necessary officers to command the companies of the hospital corps shall be detailed from the Medical Department of the U. S. Army.

That the President is authorized to organize for bearer, ambulance, field-hospital, and other like service, such companies of the hospital corps as he may deem necessary.

That all Acts or parts of Acts inconsistent with the provisions of this Act are hereby repealed.

This bill passed both Houses substantially as introduced, but in the last hours of the session failed of the President's signature.

The Company of Instruction* organized by the compiler, at Fort Riley, Kansas, under authority of the Secretary of War, as a training school for men of the hospital corps, still exists and is doing good work; but its organization is of necessity only of the most temporary and tentative character. That it has proved its right to exist is shown by the testimony of all who are familiar with its excellent results.

The following Act of Congress was approved July 27th, 1892:

That, from and after the passage of this Act, the grade of certain medical officers of the Army below that of surgeon-general shall be as follows: Those holding the rank of colonel, assistant surgeon-generals; those holding the rank of lieutenant-colonel, deputy surgeon-generals.

*This company was organized in the autumn of 1891, and was without precedent in our service. A second company was organized at Fort D. A. Russell, Wyo., in 1892, which was subsequently transferred to Washington Barracks, D. C.

That before receiving the rank of captain of cavalry, assistant-surgeons shall be examined under the provisions of an Act approved October 1st, 1892.

That medical officers of the Army may be assigned by the Secretary of War to such duties as the interests of the service may demand.

That all Acts or parts of Acts inconsistent with the provisions of this Act are hereby repealed.

The third section of this Act abrogates Section 1169 of the Revised Statutes, viz.: "Officers of the Medical Department of the Army shall not be entitled, in virtue of their rank, to command in the line of the Army or in other staff corps;" and places the Medical Department in the same category with that of the staff corps, as set forth in paragraph 16, Army Regulations, 1889.

From the foregoing it will be observed that there exists to-day in the Medical Department of the United States Army no detailed scheme of organization for active service.* The war scheme promulgated by the law of 1864, which ceased to actively exist with the surrender of the Confederate forces, was abrogated by the peace scheme of 1887, which provides that "all necessary hospital services in garrison, camp or field (including ambulance service), shall be performed by the members of the Hospital Corps." Contrasted with the almost perfect sanitary organization of other armies, our own unpreparedness in this direction points a moral we can ill afford to ignore.

The argument usually advanced † in opposition to a reorganization is the fact that existing arrangements as respects subdivision of staff duties accords with the staff organization of the war period.

This objection to change may be disposed of by the statement that the efficient armies of the world have little resemblance, as respects organization, to those maintained thirty years ago. Arms, equipments, systems

*The paragraphs (1590 to 1602) of Army Regulations, 1889, under the caption "Hospital and Ambulance Service in War," give a general outline of sanitary organization; this outline embraces simply the principles of battle-field assistance, and utterly fails to enter into the details of organization so essential to successful work. Hence it may be justly said that in the Medical Department of the United States Army there exists to-day no detailed scheme of organization for active service.

† Report of the Secretary of War, 1895.

of evolution, and method of supply have all been radically changed so as to make them conform to the new conditions of armament and the requirements of modern times. The general tendency is the concentration of chief

authority, and an organization in each branch so close, thorough, and complete that coöperation can be had from each subordinate.

Governor's Island, N. Y., April, 1895.

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